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LOUISIANA

STATEWIDE WILDLIFE INVESTIGATIONS

ANNUAL PROGRESS REPORT, W-29-R-15, FW-2R-9
A Pittman-Robertson Project

1967-68

NEWLY CONSTRUCTED
LOUISIANA WILD LIFE AND FISHERIES COMMISSION
DISTRICT II OFFICE
MONROE, LOUISIANA

LOUISIANA WILD LIFE AND FISHERIES COMMISSION
CAPITOL STATION
BATON ROUGE, LOUISIANA 70804

STATE OF LOUISIANA

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STATE: Louisiana

PROJECT: W-29-R-15

PERIOD: July 1, 1967 - June 30, 1968

ANNUAL PROGRESS REPORT

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JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT
DEER INVESTIGATIONS

State of: Louisiana
Name: Statewide Wildlife Investigations
Project: W-29R-15
Title: General Condition of Deer Herds
Job No.: I-2
Period Covered: July 1, 1967 to June 30, 1968

Abstract: Deer checking stations were operated on eighteen (18) Louisiana Wildlife Management areas during the 1967 managed hunts. Data collected at these checking stations included sex, ages, weights, antler developement, fawn-adult ratios and hunter success ratios. All such physical data has been tabulated, analyzed and compared to similar data obtained from previous managed hunts. During the 1967 managed hunts 43,182 hunters harvested 2767 deer from Louisiana Wildlife Management Areas on which check stations were operated. A brief deer aging school was held for all technical personnel prior to opening of deer season.

Recommendations: Deer check stations provide the most important source of accurate physical data concerning the white-tailed deer. Utilization of all available information relating to our deer herds is the only means of achieving efficient management of this valuable game animal. Refinement of techniques for gathering physical data should continue to be a major concern. We should continue to stress the extreme importance of collecting accurate data and strive to increase the amount of reliable physical data collected from our deer herds. As in previous years, technicians should be required to attend an annual pre-season deer aging school. This informal school will also provide technicians with the opportunity to familiarize themselves with data collecting techniques and associated records to be kept in conjunction with the managed deer hunts.

Objectives: The objective of this study is to analyze the physical data from deer killed on the wildlife management areas within the state, and to correlate the physical conditions to age classes, population densities, and fawn-adult ratios.

Techniques Used: Deer checking stations were operated on all wildlife management areas having deer seasons except Bodcau, Caney, Cities Service, and Red River Wildlife Management Areas. Ages, weights, sex, and antler development was recorded for as many deer as possible from each of the wildlife management areas. Udders of females were checked for evidence of lactation. Simultaneous openings of all wildlife management areas having deer seasons created a shortage of technical personnel and consequently, many non-technical people were used in the operation of deer checking stations, thereby making it impossible to secure valid information from all of the deer killed on the wildlife management areas. Biologists were assigned only to checking stations where a heavy deer

kill was anticipated. The only data collected by non-technical personnel that is used in this report is the total number of deer and sex of deer coming through their check stations.

All weight data is broken into three categories: Live weight, empty weight, and field dressed weight. Live weight is defined as the weight of the complete intact deer. Empty weight is considered to be the weight of the complete animal with all viscera removed. A deer with only the stomach and intestines removed was considered to be field dressed. All weight data is broken down by sex and age. The mean weight for each category in each age class is calculated. Mean weights were then converted to live weights by the application of generally accepted conversion factors. Mean field dressed weights were converted to live weights by multiplying by the conversion factor of 1.25. Mean empty weights were multiplied by the factor 1.33 to obtain computed live weights. Once all three weight categories were placed in common terms, the average computed live weight was calculated for each age class. By presenting weight data in this manner, comparisions can be made between the various management units and data categories. This method of treatment also strengthens the size of the sample.

Deer ages were grouped into three categories for the purpose of this report. In processing data from areas where either-sex hunts were held, ages were recorded as either 6 months, 1-1/2 years, or 2-1/2 years. The first two of these categories are exact ages; the latter is a composite group containing all deer of age 2-1/2 years or older. The purpose of this type of age grouping is to increase the accuracy of our age-weight correlations. Since it is felt that many of the errors made in aging deer are made in the age groups of 2-1/2 years and older deer, the consolidation of the age classes past the 1-1/2 year age group would tend to minimize the effect brought about by aging errors. All previous data has been converted to this new system of grouping for the purpose of comparison.

A deer aging school was held prior to the managed hunts. This afforded technical personnel an opportunity to familiarize themselves with aging criteria.

In cases where bucks-only hunts were held, only the 1-1/2 year and 2-1/2 year age classes were used due to the fact that 6 month old male deer did not have antlers that met the legal minimum of three inches.

All Louisiana Wildlife Management Areas having deer seasons were opened on November 24, 1967, for the managed deer hunts with the exception of Zemurray Park Wildlife Management Area, which opened for a special hunt on December 11, 12, and 13. Hunters on this area were limited to 200 per day. These hunters were selected by public drawing in advance of this special hunt. Those hunters selected received non-transferable permits good for one day of either-sex deer hunting. On other wildlife management areas, hunters were required to surrender their basic hunting license daily to permit stations in exchange for a daily permit. Only still hunting was permitted. All wildlife management areas having deer seasons had either-sex deer seasons except Bodcau, Caldwell, Caney, Cities Service, Red River, and Saline Wildlife Management Areas. All

wildlife management areas having either-sex deer seasons were assigned a limit guide number with the exception of Georgia-Pacific. On the day that the total kill on the respective area reached this number, either-sex deer hunting was terminated and the remainder of the allotted open season was limited to bucks-only. In most cases, the allotted open season for wildlife management areas was five days scheduled in the following manner: November 24-26, either-sex hunting for a total of 3 days and December 2-3, bucks only hunting for a total of 2 days. Georgia-Pacific Wildlife Management Area was open for either-sex deer hunting the first day and the four remaining days were for bucks-only. Fort Polk Wildlife Management Area had only three days of either-sex deer hunting, plus bucks-only hunting concurrent with open season in adjacent areas. Russell Sage Wildlife Management Area had three days of either-sex deer hunting, plus 2 days for bucks only, as outlined in the general wildlife management area schedule. The remainder of the season for Russell Sage was for bucks-only concurrent with the adjacent outside area. Bodcau, Caney, Cities Service, and Red River Wildlife Management Areas were opened concurrently with the seasons in adjacent areas.

Checking stations were operated for five days on most of the wildlife management areas. Fort Polk and Zemurray Park Wildlife Management Areas operated check stations for only three days. Red River, Bodcau, Caney, and Cities Service Wildlife Management Areas were open to hunting with use of season length permits, and on these areas deer checking stations were not operated. Fort Polk Wildlife Management Area was hunted with season permits following the three day either-sex deer season. Russell Sage Wildlife Management Area was hunted with season permits following the first five days of deer season, and checking stations were operated only for these five days.

Findings: All data collected on managed deer hunts held during the 1967 season has been processed and is presented in tabular form. The following tables give a summary of the results of the managed hunts on some of the game management areas.

Prepared by:	Approved by:
J. W. Farrar Study Leader	L. D. Soileau Project Leader

Table 1

COMPUTED LIVE WEIGHTS BY AGE CLASS OF DEER KILLED ON SOME LOUISIANA WILDLIFE MANAGEMENT AREAS DURING THE 1966 AND 1967 MANAGED HUNTS

		AGE					
Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
		Alexander State Forest					
Male . . .	1966	(15)	46.6	(12)	87.2	(13)	139.8
Male . . .	1967	(9)	57.8	(9)	98.8	(8)	118.3
Female . . .	1966	(10)	44.7	(9)	81.6	(17)	87.0
Female . . .	1967	(4)	57.5	-	-	(6)	87.9
		Catahoula W. M. A.					
Male . . .	1966	(21)	52.8	(42)	91.0	(38)	125.2
Male . . .	1967	(33)	56.1	(49)	91.3	(33)	126.9
Female . . .	1966	(30)	46.5	(28)	77.7	(65)	89.9
Female . . .	1967	(23)	51.9	(47)	75.5	(50)	87.5
		Evangeline W. M. A.					
Male . . .	1966	(7)	53.7	(10)	92.1	(5)	137.3
Male . . .	1967	(4)	66.8	(2)	84.0	(3)	119.2
Female . . .	1966	(10)	47.7	(4)	74.5	(11)	85.4
Female . . .	1967	(5)	51.3	(3)	89.6	(4)	88.5

NOTE: Numbers in parenthesis denotes size of sample.

Table 1 -- (Continued)

Fort Polk W. M. A.

		AGE					
Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male . . .	1966	(44)	51.3	(31)	88.7	(22)	115.0
Male . . .	1967	(47)	54.3	(42)	109.5	(47)	122.1
Female . . .	1966	(49)	48.7	(33)	72.8	(56)	89.2
Female . . .	1967	(48)	47.9	(35)	80.2	(63)	87.8

Georgia Pacific W. M. A.

		AGE					
Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male . . .	1966	(41)	58.8	(100)	98.0	(44)	120.7
Male . . .	1967	(117)	61.8	(105)	99.2	(41)	125.7
Female . . .	1966	(35)	54.8	(30)	81.3	(71)	101.5
Female . . .	1967	(112)	55.7	(79)	86.4	(219)	97.3

Jackson-Bienville W. M. A.

		AGE					
Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male . . .	1966	(18)	55.0	(32)	122.0	(17)	188.9
Male . . .	1967	(23)	56.9	(46)	114.2	(23)	150.2
Female . . .	1966	(32)	49.6	(20)	93.4	(51)	106.3
Female . . .	1967	(21)	48.2	(15)	96.1	(31)	102.7

Red Dirt W. M. A.

		AGE					
Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male . . .	1966	(45)	53.7	(46)	88.7	(41)	126.9
Male . . .	1967	(31)	57.5	(40)	120.1	(46)	127.9
Female . . .	1966	(32)	52.0	(39)	78.1	(92)	91.0
Female . . .	1967	(36)	53.3	(21)	80.0	(58)	91.6

Table 1 -- (Continued)

		AGE					
Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
		Russell Sage W. M. A.					
Male . . .	1966	(17)	59.3	(22)	135.6	(10)	160.2
Male . . .	1967	(12)	67.3	(20)	141.0	(14)	182.5
Female . . .	1966	(9)	52.9	(12)	103.7	(24)	112.9
Female . . .	1967	(18)	59.1	(18)	110.5	(23)	119.1
		Union W. M. A.					
Male . . .	1966	(5)	66.2	(18)	111.9	(15)	158.1
Male . . .	1967	(7)	60.0	(16)	112.5	(12)	163.2
Female . . .	1966	(8)	53.4	(6)	92.4	(9)	110.0
Female . . .	1967	(3)	64.9	(6)	93.0	(6)	124.8
		West Bay W. M. A.					
Male . . .	1966	(61)	47.0	(65)	78.5	(54)	108.7
Male . . .	1967	(95)	52.5	(113)	80.9	(124)	109.7
Female . . .	1966	(58)	41.7	(44)	72.0	(110)	78.5
Female . . .	1967	(81)	46.2	(86)	73.7	(133)	82.8

NOTE: Age-weight correlations were made only on those areas where sufficient data were collected.

Table 2

HUNTER SUCCESS RATIOS FOR SOME LOUISIANA WILDLIFE MANAGEMENT AREAS DURING THE 1966 AND 1967 DEER HUNTING SEASONS

	1966			1967		
Game Management Area	No. of Hunter Efforts	No. Of Deer Killed	Hunter Success Ratio	No. of Hunter Efforts	No. of Deer Killed	Hunter Success Ratio
Alexander Forest	1439	77	1/19	1186	37	1/32
*Caldwell	1294	59	1/22	1561	61	1/26
Catahoula	5208	234	1/22	3660	198	1/19
*Concordia	(Season Closed)			73	1	1/73
Evangeline	1483	47	1/32	851	22	1/39
**Fort Polk	3487	236	1/15	4467	284	1/16
Georgia-Pacific	4231	329	1/13	6787	847	1/8
Jackson-Bienville	3430	171	1/20	2732	160	1/17
Red Dirt	4861	297	1/16	4173	233	1/18
Russell Sage	1240	91	1/14	3234	106	1/31
Sabine	540	17	1/32	401	13	1/31
*Saline	250	6	1/42	1245	50	1/25
Thistlethwaite	522	13	1/40	848	18	1/47
Union	1191	71	1/17	959	50	1/19
West Bay	6922	406	1/17	10130	642	1/16
Zemurray	422	17	1/25	397	24	1/16.5
Total	36520	2071		42704	2746	

* "Bucks Only" hunting.

** Manner in which hunts were conducted does not reflect on accurate measure of hunter success.

NOTE: All hunting is "any deer" hunting unless otherwise indicated.

Table 3

DEER HERD REPRODUCTION RATIOS
SHOWING NUMBER OF FAWNS PER 100 DOES OF AGE 2 1/2 YEARS AND OLDER

Wildlife Management Areas		Adult Does	Fawns	Ratios
Catahoula W.M.A.				
	1966.	64	51	80/100
	1967.	50	56	112/100
Fort Polk W.M.A.				
	1966.	56	93	166/100
	1967.	63	95	150/100
Georgia-Pacific W.M.A.				
	1966.	71	76	107/100
	1967.	219	229	105/100
Jackson-Bienville W.M.A.				
	1966.	51	50	98/100
	1967.	31	44	141/100
Red Dirt W.M.A.				
	1966.	92	77	84/100
	1967.	58	67	115/100
Russell Sage W.M.A.				
	1966.	24	26	108/100
	1967.	23	30	130/100
West Bay W.M.A.				
	1966.	110	119	107/100
	1967.	133	176	131/100

Table 4

Percentage of $1\frac{1}{2}$ year old bucks having only two antler points (spikes), as found on some Louisiana game management areas during the 1967 managed hunts.

Area	Number of $1\frac{1}{2}$ Year Old Antlered Males Checked	Bucks having 2 points	
		Number	Percent
Alexander Forest W.M.A.	9	6	66.7%
Caldwell W.M.A.	46	20	43.5%
Catahoula W.M.A.	46	36	78.2%
Fort Polk W.M.A.	42	24	57.1%
Georgia Pacific W.M.A.	99	58	58.6%
Jackson Bienville W.M.A.	45	33	73.3%
Red Dirt W.M.A.	39	24	61.5%
Russell Sage W.M.A.	20	9	45.0%
Union W.M.A.	16	5	31.2%
West Bay W.M.A.	113	90	79.6%

Table 5

Incidence of lactation among $1\frac{1}{2}$ year old female white-tailed deer as observed on some Louisiana game management areas during the 1967 hunting season.

Area	Number of Deer checked	Number of Deer Lactating	Percent Lactating
Catahoula W.M.A.	10	1	10.0%
Fort Polk W.M.A.	28	3	10.7%
Georgia Pacific W.M.A.	58	5	8.6%
Jackson Bienville W.M.A.	12	1	8.3%
Red Dirt W.M.A.	6	0	0
Russell Sage W.M.A.	15	5	33.3%
West Bay W.M.A.	43	3	7.0%

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-6 Title: Annual Inventory of Deer Areas

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Deer range surveys were made in some areas of the state. The findings of these are made available to the Louisiana Wild Life and Fisheries Commission.

Recommendations: It is recommended that the inventory of the deer areas be continued. It is further recommended that the District Supervisors arrange for annual surveys, to be made of as many of the deer ranges within their districts, as possible. It is recommended that the administrators encourage the District Supervisors to get this most important work accomplished.

Objectives: The overall objective of this study is to gather deer management data from the deer ranges throughout the state. Specific objectives are: (1) to learn as much as possible regarding the various deer ranges of the State and the herds that occupy them; (2) to recommend management measures for all deer ranges in the State, and (3) to compile a record of deer management regulations for the various ranges during the recent history of management.

Techniques Used: Each District Supervisor divided his district into deer range survey areas. Each area was to be treated as the range of one deer herd and was to be surveyed and reported on separately. These areas were set up using roads or streams as well defined boundaries.

The techniques used were taken from a guide that was previously prepared for making the surveys and for preparing a survey report. For the purpose of

this report the techniques will be submitted just as they are in the job outline. The techniques are as follows:

Each District Supervisor is responsible for a survey of all the deer ranges in his district annually. Assistance from other district personnel and research personnel was to be provided. Further assistance from employees of the Fish and Game and Enforcement Divisions was to be solicited.

A survey party was to consist of one to several men, each familiar with the browse plants of the area.

A survey route was to be laid out along public roads or along water courses which were navigable. The party was to travel by vehicle or boat between inspection stops.

Inspection stops were to be located on a map of the area. At each stop the investigator was to walk perpendicular to the main line of travel keeping notes on occurance and use of browse, and deer sign such as tracks, droppings, rubs, and sign of dogs and cattle. The timber type and all other information believed to be relevant was to be recorded.

Local people were to be contacted as well as enforcement agents, Forestry Commission employees, and Industrial Foresters to obtain comments helpful to the survey.

The physical condition of the deer was to be obtained from data recorded during the previous season when such data is available.

A narrative report was to be prepared on each area surveyed. The report was to include description of area, history of deer herd and hunting seasnns, factors that affect hunting, condition of the range, condition of the herd (if determined), economic liability of deer in the area, recommendations for coming season, the chances of getting the herd managed along sound biological principles, and an estimate of needs to facilitate deer management in the area.

Because of space requirements, the deer range survey reports covering work accomplished during this period will not be reproduced here.

Deer range surveys were made and reported on in portions of the following parishes: East Carroll, Madison, Concordia, Tensas, West Feliciana, Iberville, St. Landry, Pointe Coupee, and the Wildlife Management Areas of Spring Bayou and Thistlethwaite.

Findings: Some deer ranges were investigated and reported on.

Prepared by: ____________________
Louis E. Brunett
Deer Study Leader

Approved by: ____________________
Lawrence D. Soileau
Project Leader

DATE: ____________________

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT
DEER INVESTIGATIONS

State of: Louisiana

Name: Statewide Wildlife Investigations

Project: W-29R-15

Title: Southeastern Cooperative Wildlife Disease Study

Job No.: I-7

Period Covered: July 1, 1967 to June 30, 1968

Abstract: No field trips were made to Louisiana by personnel of Southeastern Cooperative Wildlife Disease Study (SCWDS) during the period covered by this report. Ectoparasite collections were made from all major deer herds in Louisiana and forwarded to SCWDS for identification and evaluation.

Recommendations: Continued efforts should be made to investigate diseases and parasites of our major deer herds in order that we may increase our management efficiency.

Objective: To conduct field and laboratory investigations of wildlife parasites and diseases.

Techniques Used: All techniques used are governed by the SCWDS.

Findings: All findings resulting from information collected under this study are reported on by the SCWDS. No field trips were made to Louisiana by the SCWDS during the period covered by this report.

The collection and examination of ectoparasites taken from wild white-tailed deer comprised the primary achievement under this job during the period indicated. These ectoparasites were collected from deer killed on managed deer hunts and forwarded to the SCWDS for subsequent examination and identification by the USDA Laboratory at Beltsville, Maryland. Ectoparasite reports were received from thirty-six samples taken from white-tailed deer.

Nothing unusual was found in these ectoparasite samples with the exception of the following: One specimen of the brown winter tick (Dermacentor nigrolineatus) was collected from a deer killed on Lutcher-Moore Wildlife Management Area. A single specimen of the Gulf Coast Tick (Amblyomma maculatum) was also taken from a deer killed on the same management area. According to ectoparasite collection reports for preceeding years, the brown winter tick has not previously been collected and recorded as having occurred on deer in Louisiana. One such record of occurrance of the gulf coast tick was previously recorded from Natchitoches Parish in November 1965. The extent or significance of the occurrence of these ectoparasites in deer herds of

Louisiana is largely unknown at the present time. Their presence, however, is indicative of the need to maintain continuous surveilance leading to the early detection of the more serious forms of parasites that may threaten our deer herds, the livestock industry and the health and welfare of our citizens.

Prepared by:
J. W. Farrar
Study Leader

Approved by:
L. D. Soileau
Project Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of:	Louisiana		
Project No.:	W-29R-15	Name:	Statewide Wildlife Investigations
Job No.:	I-8	Title:	Establishment of Browse

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

A study plot of slash pine (Pinus caribaea) was re-established in February of 1967 after being burned in the previous month. Yaupon (Ilex vomitoria) seedlings were planted within the pine at various stocking rates in early spring of 1968. Red bay (Persea barbonia) seeds were planted under field conditions.

Recommendations:

It is recommended that this job continue with emphasis placed on checking the yaupon and pine seedlings at the end of the growing season to determine if competition exists. Seed of browse plants should be planted under field conditions to determine if browse plants can be established under each existing condition.

Objective:

To determine if deer browse plants can be introduced on pine sites and if competition will exist between the plants and pine and at what stocking rate competition occurs. To determine the seeding method of deer browse plants that yields the highest percent of germination.

Techniques Used:

In February 1966, on the Red Dirt Game Management Area, study plots were established with seedlings of slash pine and yaupon. All plots were one-tenth acre in size. The slash pine were planted on all plots at an 8 foot by 8 foot spacing. The yaupon was introduced on three plots at each of three different stocking rates. The plots were established in the following manner: (1) three plots of slash pine and yaupon at 720 plants per acre; (2) three plots of slash pine and yaupon at 360 plants per acre (3) three plots of slash pine and yaupon at 160 plants per acre and (4) three plots of slash pine only.

During January 1967, the United States Forest Service in prescribed burning of the compartment in which the above study plots were established, permitted the fire to burn through the study area, destroying the young pine and yaupon. More pine seedlings were obtained and the plots were re-established. The yaupon seedlings were not re-introduced at this time.

Yaupon seedlings were put in the study plots in late March of 1968. The same rates were used as is described above.

These study plots have been marked by putting a nine gauge smooth wire around the entire study block. To this wire streamers made from plastic flagging were attached. Personnel of the United States Forest Service were notified as to the exact location of this study and they agreed to protect it from future fires.

On Red Dirt, in February 1966, yaupon and honeysuckle were planted on beds that had been prepared with a breaking plow and disked smoothly. Yaupon seed that were gathered in 1964-65, removed from the fruit and refrigerated during the winter of that year, were planted simultaneous with seed gathered during the winter of 1965-66. These seed were dropped by hand onto the prepared bed and covered with pine needles. Honeysuckle fruit, as well as honeysuckle seed, removed from the fruit, were planted in the same manner at different locations on the bed.

On Red Dirt in January 1968, red bay seed were planted on plots under longleaf pine that averaged 14 inches D.B.H. Some of these were planted by removing the pine needles and the seed put directly on the ground and covered with the pine needles. Others were planted by placing them on top of the needles, necessitating that the seed find their way down within.

Findings:

No measurements were taken of the pine and yaupon.

Seedlings from yaupon planted on the prepared beds, on Red Dirt in February 1966, and covered with pine needles, began emerging in the spring of 1967. These plants continued to grow and other seed came up in the spring of 1968.

The honeysuckle planted on similiar beds, in February 1966, began coming up during that year. More of the seed germinated in the spring of 1967.

None of the red bay seed germinated that was planted in 1968 on Red Dirt.

Prepared by:________________
Louis E. Brunett
Deer Study Leader

Approved by:________________
Lawrence D. Soileau
Project Leader

DATE: ________________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana Name: Statewide Wildlife Investigations

Project No.: W-29-R-15 Title: Preliminary Parasite Survey

Job No.: I-9

Period Covered: July 1, 1967 - June 30, 1968

Abstract: Five deer were necropsied for the purpose of this study. Two of these deer were collected in the Winn Parish deer study enclosures, which are research study pens which have known stocking levels. Necropsies were performed on three additional deer from Ouachita Parish that were victims of traffic kills. The accidental deaths of these deer provided a unique opportunity to conduct parasite and disease investigations of a relatively new deer herd, in an area of the state that has received no prior investigations of this nature. No outstanding parasite infestations or disease conditions were evident in any of the deer examined.

Recommendations: This study should be continued in order that we may maintain proficiency in making gross examinations of deer associated with problem herds, general condition studies, or unexpected mortalities. This will enable our field personnel to detect parasite and disease problems in deer herds under observation during the course of normal field activities. In addition, we will ultimately be able to more fully understand

the relationship between parasite levels and optimum deer populations. This experience will also serve to acquaint the field technician with the more common disease or parasite conditions and, as a result, he will be more fully qualified to recognize major disease or parasite problems should they become a reality.

Objectives: The objectives of this job are to compile a list of the common parasites of the white-tailed deer in Louisiana, and familiarize technicians with these forms and their associated pathology. Color slides will be taken of as many parasites and pathological conditions as possible.

Techniques used: Standard post-mortem examination procedures were used for these studies. Each deer was methodically disected and inspected for parasites and tissues that appeared to be abnormal.

Findings: Two (2) deer collected from the Winn Parish deer research enclosures were examined and revealed no unusual parasite infestations or disease conditions. Both of these deer were found to have moderate to heavy infestations of the gullet worm (Gongylonema pulchrum). All prior examinations of deer from this area have shown evidence of this parasite.

The abomasum of one deer exhibited minor lesions indicative of a probable light infestation of the medium stomach worm (Skrjabinagia-Ostertagia complex).

Ectoparasites found on these animals were confined to moderate to heavy infestations of ticks common to this area, and lesser numbers of the deer louse fly (Lipoptena mazamae).

A deer from Cities Service W.M.A. in Ouachita Parish harbored a light infestation of the abdominal worm (Artionema tundra), as well as an unknown nematode found imbedded in the surface of the liver. Samples of the latter were taken and forwarded to the Southeastern Cooperative Wildlife Disease Study for identification. With the exception of the aforementioned, the deer from Ouachita Parish were among the most parasite-free animals, in regards to both endoparasites and extoparasites, that have been examined in Louisiana. The general body condition was excellent for all the deer examined, and no evidence of disease conditions were found.

In the interest of maintaining continuous surveilance and early detection of parasites affecting our deer herds, an additional parasite investigation was made during the course of this study. A one week old fawn was captured in Union Parish, which exhibited a heavy infestation of an unknown larvae on the back and hindquarters. Larvae samples were taken and forwarded to Louisiana State University, Department of Entomology, for positive identification. This particular maggot proved to be the larvae of the green blow fly (Lucilia spp.), whose adverse affects to deer are fairly uncommon and generally incidental in nature.

Identification of the parasites listed in this report should be regarded as tentative identifications only unless

otherwise specified. These identifications were made by taking into consideration the host species, characteristic pathology, and deer herd history. All examinations employed gross techniques.

Prepared by:		Approved by:	
	J.W. Farrar Deer Study Leader		L.D. Soileau Project Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-11 Title: Cooperative Range Study

Period Covered: July 1, 1967 through June 30, 1968

Abstract: The fences of the three enclosures and controls were checked and maintained. The levees and spillways of the watering ponds were also maintained. The drive to verify the presence of the deer revealed two enclosures were properly stocked. In the third a dead deer was found.

One deer was removed from the eight and four deer enclosures respectively. These animals plus the one found dead in the eight deer enclosure were replaced. The deer removed were examined for general physical condition and internal and external parasites.

Recommendation: It is recommended that this job be continued.

Objective: The objectives of this job are: (1) to check the fence around three 160 acre deer enclosures and the 20 acre controls and to keep the fence right-of-way free of brush and to maintain the levees and spillways of the watering ponds, (2) to verify the presence of the proper number of deer in each enclosure, (3) to obtain data in regards to weights, measurements, internal and external parasites and general physical condition of deer within the enclosures, and to replace the animals in an orderly manner.

Techniques Used: The fence around the three 160 acres enclosures and their 20 acre controls was inspected every two weeks and immediately after each heavy rain and high wind for washouts and trees or tree branches that may have blown on it.

To verify the presence of the proper number of deer in each enclosure, the standers and drivers method as described in previous reports was used.

To obtain information regarding weights, body measurements, internal and external parasites and general physical condition, one deer was removed from the eight deer enclosure and one from the four deer enclosure, by shooting. During the inventory of the eight deer enclosure one deer was found dead. After several unsuccessful attempts to remove an animal from the two deer enclosure by shooting, it was decided to postpone this removal for another year.

The animals removed from each enclosure were weighed in addition to being examined for general physical condition and internal and external parasites. The examinations were made by Biologists Dan Dennett and Jerry Farrar.

Findings:

The fence was checked, the fence right-of-way and spillways and levees to the watering ponds were maintained.

The drive to verify the presence of deer in the enclosures revealed the two and four deer enclosures to be properly stocked. In the eight deer enclosure seven live animals were observed and the carcass of another was found. This carcass was identified by ear tags recovered as one of the animals under study.

The examination of the animal removed from the eight deer enclosure showed it to be in good physical condition. Mr. Farrar reported the internal examination of this deer showed a heavy infestation of the gullet worm (Gongylonema sp.) but did not show any other detectable signs of parasite infestation. Externally this animal showed a very heavy infestation of ticks on the head, neck, and ears, and a moderate infestation of the deer louse fly (Lepoptena mazamae) on the abdomen.

Mr. Farrar reported the examination of the animal removed from the four deer enclosure revealed it to be in good physical condition. There was a moderate infestation of gullet worm, three separate lesions (shallow ulcerations) indicative of a light infestation of probably the medium deer stomach worm (Ostertagia Skjabinagia) in the abomasum, and no

other detectable infestations of internal parasites. Externally there was a moderate infestation of ticks on the head, neck, and ears, and the deer louse fly on the abdomen and blanks.

The deer removed from the enclosures were replaced. Each new deer, prior to being released, was marked with a naughahyde covered leather collar.

Prepared by: ______________ Approved by: ______________
Louis E. Brunett Lawrence D. Soileau
Deer Study Leader Project Leader

DATE: ______________________

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT
DEER INVESTIGATIONS

State of: Louisiana

Name: Statewide Wildlife Investigations

Project: W-29R-15

Title: Rumen Content Analysis

Job No.: I-12

Period Covered: July 1, 1967-June 30, 1968

Abstract: Rumen samples from seventeen (17) white-tailed deer have been collected for analysis. Quart jars filled with formalin were distributed to technical personnel throughout the state in order that rumen samples could be collected as opportunities permitted.

Recommendations: Field personnel in all areas of the state should be equipped with a supply of rumen sample collecting jars in order that they may utilize every available opportunity to collect rumen samples. At the present time the majority of samples have been obtained during the hunting season resulting in a shortage of samples taken during spring, summer and various off season months, for some regions of the state. An inventory should be made of samples in storage to determine the exact areas and months of insufficient sampling. Efforts of field personnel should then be directed toward completion of a collection that would include large numbers of samples obtained at all seasons of the year from the major deer herds of the state. Better co-operation from field personnel toward collection of sufficient number of samples must be realized if analysis is to be made in the near future. A collection of reference plant materials should be made from each of the major areas represented by rumen sample collections, prior to the analysis of sample material.

Objectives: This job is designed to provide information pertaining to the seasonal food habits of the white-tailed deer in Louisiana.

Techniques Used: Rumen samples were placed in quart fruit jars containing a 10% formalin solution. Care was taken to insure that all of the sample material was covered with the formalin solution so as to reduce the possibility of sample spoilage. The date of collection and the collection locality is scratched into the jar lid with a knife point so as to eliminate the possibility of losing the identity of sample material through misplaced or destroyed labels.

Findings: No further attempt at analysis of sample material collected under this job will be made until such time as large numbers of samples from major deer herds are available. A preliminary inventory of samples in storage indicates insufficient sampling from various regions of the state. In addition more samples are needed representing the various seasons of the year. If the original objective of this study is to be realized, it is

anticipated that field collections will require at least an additional year to be complete. A collection of reference plant material will be made from the major areas represented, at the completion of rumen sample collections. This plant material will be preserved in 10% formalin in order that it can be used as a basis of comparison at the time the rumen samples are analyzed.

The primary emphasis of this study is now being placed on the collection of sample material at times of the year other than the hunting season.

Prepared by:	Approved by:
J. W. Farrar Study Leader	L. D. Soileau Project Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: 14 Title: Deer Publication

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Background and supporting data collected during this period was assembled and reviewed.

Recommendations: It is recommended that this job be continued with the same objective as was set forth for the year 1967-68. It is further recommended that the Deer Study Leader and selected Biologists prepare the publication.

Objective: To prepare a publication for distribution to interested citizens and sportsmen from deer data that has accumulated through the years 1949-1968.

Techniques Used: Background and supporting data obtained during this period relative to the publication were assembled and reviewed. Photographs were obtained and reviewed. Mr. Robert Murry, on leave from the Louisiana Wild Life and Fisheries Commission, and presently Professor of Game Management at Louisiana State University is to do the work in preparing the publication. It is anticipated, at this time the publication will be finished and ready for distribution by June 30, 1969.

Prepared by: ______________________
Louis E. Brunett
Deer Study Leader

Approved by: ______________________
Lawrence D. Soileau
Project Leader

Date: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN 1

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-15 Title: Palatability of Sprouts

Period Covered: July 1, 1967 through June 30, 1968

Abstract: A study area was established to investigate producing methods of treating deer browse species with herbicide, by burning, and by cutting. The herbicide used was 2,4,5T. An abundance of sprouts was produced by the species burned and cut. Samples of sprouts from the treated areas were collected in 1966 for chemical analysis, and to determine if those produced by the herbicide treated plants retained the chemical. The samples were too small for adequate tests to be made.

Recommendations: It is recommended that this job be continued until more sprouts can be produced to test for retention of the chemical. This should take one more year. To date, samples collected from herbicide treated plants have not been large enough to test.

Objective: The objective of this job is to determine if sprouts produced by 2,4,5T treated browse species retains the herbicide and the effect it has on their palatability.

Techniques Used: To accomplish the objective of this job sprouting of deer browse species was induced by three methods: (1) herbicide treatment, (2) burning and (3) cutting. A cattle free study area was selected on the Red Dirt Game Management Area. This area was situated in a stream bottom that was extremely wide. The overhead canopy of the study area was of medium density and comprised of loblolly pine (*Pinus taeda*), white oak (*Quercus alba*), water oak (*Quercus nigra*) and beech (*Fagus*

grandifolia). The understory was made up of black gum (*Nyssa sylvatica*), maple (*Acer rubrum*), spring huckleberry (*Vaccinium elliottii*), yaupon (*Ilex vomitoria*), azalea (*Rhododendron canescens*), water oak, sweetleaf (*Symplocos tinctoria*), witch-hazel (*Hamamelias virginiana*), whitebay (*Magnolia virginiana*), parsley hawthorn (*Crataegus marshallii*), red bay (*Persea borbonia*), snowbell (*Styrax americana*), largeleaf gallberry (*Ilex coriacea*), candleberry (*Sebastiana ligustrina*), and flowering dogwood (*Cornus florida*). This area was chosen because a variety of plants could be treated on a small area.

The study area was divided into four plots. Each plot was approximately one acre in size. Desirable and intermediate preference deer browse species on one plot were treated with 2,4,5T (four pounds acid equivalent per gallon) at a concentration of eight pounds acid equivalent per hundred gallons of water and diesel oil emulsion. The herbicide was applied to each plant through the use of a back pack type sprayer.

Deer browse species, on one plot, considered to be of desirable and intermediate preference were cut with a brush blade. There was no effort made to cut these at any specific height. The cut was made at a convenient height anywhere near ground level to 18 inches.

One plot was burned in March, 1966. One plot was not treated and was used as a control. Periodic observations were made to determine if there was a choice made by deer, between the sprouts produced on browse species as treated by the three methods described above.

In June, 1966, samples of sprouts from whitebay, redbay, maple, dogwood, azalea and blackgum were clipped from the burned and cut plots. The sprouts on the herbicide treated plants had not made sufficient growth to collect a sample large enough to be analyzed. These samples plus those from plants in the control area were not collected until September. Two samples were collected from each species on each plot. The first two inches of the stem tip comprised one sample and the following four inches of each stem were used for the other sample. These samples were taken to the Cooperative Wildlife Research Unit at Louisiana State University, where they were oven dried and ground.

The Feed and Fertilizer Laboratory at the University was to analyze the samples to determine the precentage of protein, fat, fibre, moisture, ash, calcium and phosphorous. They were to also analyze samples for retention of the herbicide.

This study was also conducted in 1965. Two year old sprouts were also collected in June and September, 1966 from the same plants and treatments as described above. Thus the samples included sprouts of the current season's growth and of two year's growth.

In an effort to gather the necessary data the plot and treatment scheme as outlined above is being established again. The plants to be sprayed with the chemical have been treated. In the winter the other treatments will be applied. All treated plants should start producing sprouts in the spring of 1969. When the sprouts have grown enough, the samples will be gathered. When the analysis report is recieved, all data will be analyzed and a completion report prepared.

Findings: The samples gathered from the herbicide treated plants have not been large enough to determine if those plants retain the herbicide. This study is being continued to try to determine this objective.

Prepared by: ______________
Louis E. Brunett
Deer Study Leader

Approved by: ______________
Lawrence D. Soileau
Project Leader

DATE: ______________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I- 16 Title: Winter plantings

Period Covered: July 1, 1963 through June 30, 1968

Abstract: The honeysuckle plants in the north 40 deer corral on the Red Dirt Game Management Area did not make enough growth to pursue those objectives. On two plots at Red Dirt, soil samples were collected and the soil analyzed before planting wheat. Those study plots where lime, fertilizer (6-24-24), and ammonia nitrate were applied produced the most green forage per acre, received more use by deer, withstood extreme cold weather better, and had a much better color.

Recommendations: Some of the objectives of this job have been accomplished and it is apparent that others may not be for some time. Therefore it is recommended this job be discontinued and this report be the job completion report. It is recommended that in the future when two acres of honeysuckle (Lonicera japonica) can be successfully established in the north 40 deer corral on the Red Dirt Game Management Area that a study be initiated with the objectives of (1) to determine the practicability of establishing honeysuckle on plots for deer; (2) to determine the amount of forage produced per acre of honeysuckle planting; and (3) to determine the differences in use of wheat versus honeysuckle for winter food supplements.

For wildlife plantings made in the future it is recommended that the amounts of fertilizers for a particular crop be applied as determined from a soil analysis.

Objectives:

When this job was started in July 1963 it had the objectives of (1) determining the feasibility of winter plantings for deer, and (2) determining the amount of forage produced per acre of planting.

Beginning in July 1964 and remaining until the present the objectives were, (1) to determine the practicability of establishing honeysuckle on plots for deer, (2) to determine the amount of forage produced per acre of honeysuckle plantings, (3) to determine the effect browsing had on the production of green forage by wheat, and (4) to determine the effects various fertilization rates had on wheat production.

Techniques Used:

This job was conducted on the Red Dirt Game Management Area. This area is in northwest Louisiana, in Natchitoches Parish, and is approximately 38,000 acres. It is situated in the transition zone of the longleaf pine timber type of west Louisiana and the loblolly - shortleaf pine - hardwood type of the northwestern portion of the state. The primary timber type, on the area, is longleaf pine in natural stands. The topography is made up of gently rolling hills and is considered well drained. Three streams are found on this area with numerous intermittant streams and drains scattered over the entire area. Some hardwoods are found along the streams and on some of the ridges.

In the fall of each year on Red Dirt plots have been planted to wheat. This wheat was planted for turkey but deer consumed it in great quantities. The seeding and fertilization rate was two bushels of seed and 200 pounds of 12-12-12 fertilizer per acre.

The techniques varied from year to year so these will be discussed for each individual year.

1963-64 - The 1963-64 portion of the study was carried out in two 40 acre deer corrals on Red River. Hereafter referred to as the north 40.

For the purpose of this study a total of two acres within six plots were planted to wheat in the south 40. No wheat was planted in the north 40. In establishing the wheat plots natural openings were used as much as possible. Some clearing of brush and trees around the periphery of the natural

openings was done to obtain the required acreage.

The soil of the plots was broken with a farm tractor and breaking plow. Prior to planting, in early October, the plots were well disked and fertilized. The fertilizing and seeding rate was 200 pounds of 12-12-12 fertilizer and two bushels of seed per acre.

To protect some wheat from being utilized, by deer, 20 enclosure cages were constructed from 1 x 2 inch weld wire. The cages were made round in shape and covered an area equal to one meter square. They were two feet in height.

The protective cages were placed randomly over the six plots. It was decided to put four cages per plot in three that were between one-third and one-half acre in size; three cages per plot in the two that were between one-quarter and one-third acre in size; and two cages in the one plot that was approximately one-quarter acre in size.

The locations at which protective cages were to be placed were determined in the following manner: numbers for random drawing were selected to represent points of five foot intervals down the center of the plot. Through these points lines running the width of the plots were established. Numbers were drawn representing points at five foot intervals along the lines running the width of the plot. These numbers represented the point over which the cage would be centered. Numbers to represent the number of cages per plot were previously selected at random.

Both corrals were stocked with four deer each. The deer were trapped on the Alexander State Forest, near Alexandria, La.

Two deer were placed in the North 40 on October 31, 1963, and the stocking was completed with two more on November 7, 1963. The deer placed in the North 40 were two adult females, one of which weighed 80 pounds and the other 90 pounds, and two females that were fawns in the spring of 1963, weighing 35 to 40 pounds. This was a total live weight of 245 pounds. It was assumed that four deer per 40 acres did overstock the enclosures excessively.

The stocking of the south 40 was started on November 5, 1963, with an adult female that weighed

75 pounds. On November 6, an adult female weighing 80 pounds and a young 1963 buck fawn that weighed 50 pounds were released in this enclosure. The stocking of this corral was completed on November 9, with the release of an adult female that weighed 80 pounds. This was a total live weight of 285 pounds in this corral on completion of the stocking.

Beginning on December 19, 1963, inspection trips were made to the corrals every two weeks. On these trips useage of the wheat was observed and the useage on the browse plants was recorded. Useage on ten plants of preferred and non-preferred species that had been utilized was recorded. Each of the ten plants was picked at random while walking in each corral. During each check approximately the same route was traveled. This made it possible for some of the same plants to be checked each time. Each plant was checked by counting the number of stems available and then counting the number utilized. With these two figures a percentage of utilization figure was calculated.

On March 17, 1964, the wheat under the protective cages was clipped and weighed to determine the amount that had been produced. Five pounds, green weight, of clipped wheat was air dried to obtain a dry weight conversion factor in order to compute total production on a dry weight basis.

1964-65 - For the purpose of accomplishing the objective of determining the practicability of establishing honeysuckle on plots for deer and to determine the amount of forage produced per acre of honeysuckle plantings, an effort was made in the 1964-65 portion of this study to establish two acres in the north 40. Each year thereafter an effort was made to establish that acreage. To date this has been unsuccessful. However, approximately one acre has been established.

After it was determined, for the 1964-65 portion of this study, that those objectives pertaining to the honeysuckle could not be attained the objectives were added to determine the affect browsing had on the production of green forage by wheat and the affects various fertilization rates had on wheat production. To accomplish the added objectives one-half acre of wheat was planted in the south 40. The fertilization and seeding rate was 200 pound of 12-12-12 fertilizer and two bushel of seed per acre.

To protect this wheat from rabbits poultry wire, of one inch mesh, two feet in height was put around the plot. There were no deer in this corral.

A buffer zone, 10 feet wide, was established around the entire plot to avoid the effects of competition from brush and trees on the wheat.

Twenty paired plots were randomly established over the planting. One of each pair was clipped three times and the other was clipped only at the termination of the measurement period.

Each clip plot was square and contained 10 square feet. Plots of this size was chosen so it would be easier to work with mathematically. The plot to be clipped periodically was paired with one that would not be clipped until the others were clipped for the last time.

The location of each pair of plots was determined mechanically. A number was assigned each pair and put in a hat. Numbers were drawn representing the locations of each pair of plots. Each pair of plots was then established on the ground by measuring, with a 100 foot steel tape, from the inside of the buffer zone.

It was originally planned to clip one of the paired plots each week. After the first clipping the wheat did not make sufficient growth for these plots to be clipped as planned.

To determine the affects various fertilization rates had on wheat production a study plot located outside the deer corrals was planted. The plot was marked off in five strips. Each strip being approximately 10 feet wide. On all strips wheat was planted at the rate of two bushels of seed per acre. The strips were fertilized at the following per acre rates: (1) 200 pounds of 12-12-12 when planted and top dressed later with 50 pounds of amonia nitrate, (2) 400 pounds of 12-12-12 when planted, (3) 200 pounds 12-12-12 when planted, (4) 200 pounds 12-12-12 when planted and top dressed later with 200 pounds of 12-12-12, and (5) no fertilizer. All wheat was planted on October 12, 1964.

To protect some wheat from being utilized, by deer, enclosure cages constructed from 1 x 2 inch weld wire were used. The cages were round in shape

and covered an area equal to one meter square. They were two feet in height. Four protective cages were used on each strip.

On April 8, 1965, the wheat under the protective cages was clipped and weighed to determine the amount produced on each strip. Five pounds, green weight, of clipped wheat was air dried to obtain a dry weight conversion factor in order to compute total production on dry weight basis.

1965-66 - The accomplished objectives of determining the amount of forage produced per acre of wheat planting and the cost of producing the green forage, two plots each on different sites on the Red Dirt Game Management area were used. One plot, the Mossy Head Plot, was on flat, poorly drained, fine sandy loam soil and the other, the gas line plot, was on well drained, sandy loam. The soil of the second plot is commonly referred to as deep sand.

Soil samples were collected from the two plots and turned over to the county agent of Rapides parish. The county agent sent the samples to the Soil Testing Laboratory, Louisiana State University Agricultural Experiment Station, Baton Rouge, Louisiana, for analysis.

Each plot was prepared for planting by breaking the soil with a farm tractor and breaking plow, and double disking. Nine study plots 10 feet by 30 feet were measured off, three plots wide and three plots long. A ten foot, buffer strip, separated the plots. Three of the plots were planted with the lime and fertilization rate as recommended from the soil analysis; three were planted with a fertilization rate of 300 pounds 12-12-12 per acre, and three were planted with no fertilizer and used as a control. The seeding rate for all plots was two (2) bushel of wheat per acre.

These study plots were planted by applying the required amount of lime and fertilizer, or fertilizer, seed, and then disked in.

On the Mossy Head Plot, the recommendation for lime and fertilizer per acre was three tons lime, 400 pounds of 6-24-24 or 0-20-20 per acre, and 150 pounds of ammonia nitrate or 300 pounds nitrate of soda, plus top dressing with 150 pounds ammonia nitrate in January. Four hundred pounds of 6-24-24 plus the recommended

amount of ammonia nitrate was used.

On the gas line plot two tons of lime per acre was recommended and that used was the same as for the Mossy Head Plot.

All wheat plantings were made October 13, 1965. Ammonia nitrate was applied on those plots due to receive it on February 1, 1966.

Three plots, one meter in size, were picked mechanically on each of the 10 x 30 foot plots. This made a total of nine sampling plots for each treatment on each large plot. To protect the wheat on these sampling plots, from being utilized by deer, enclosure cages constructed from 1 x 2 inch weld wire were used. The wheat under these protective cages was clipped and weighed on March 28, 1966. This wheat was clipped approximately one inch from the ground. The weights obtained from the clipped wheat were used to compute a total production figure.

To determine the cost of producing the amount of green forage grown on an acre of wheat figures for the cost of breaking, disking, fertilizer, applying fertilizer, seed and seeding, and disking to cover were used.

1966-67 - To accomplish the objectives of determining the amount of forage produced per acre of wheat and the effects browsing has on its production a study was conducted on the Mossy Head plot on Red Dirt. This was a different section of the plot from that used the previous year.

Each plot was prepared for planting by breaking the soil with a farm tractor and breaking plow, and double disking. Eighteen study plots, 20 feet by 30 feet were measured off in two groups of nine. Each group of plots were three plots wide and three plots long separated by a five foot buffer strip. In each group of plots three were planted with the lime and fertilization rate as recommended from the soil analysis; three were planted at the fertilization rate of 300 pounds 12-12-12 per acre, and three were planted with no fertilizer and used as a control. The seeding rate for all plots was two (2) bushels of wheat per acre.

The study plots were planted by applying the

required amount of lime and fertilizer, or fertilizer, and seed, on the previously prepared seedbed, and then disked in.

The recommendation for lime and fertilizer per acre was three tons lime, 400 pounds 6-24-24 or 0-20-20 per acre and 150 pounds of ammonia nitrate or 300 pounds nitrate of soda, plus top dressing with 150 pounds ammonia nitrate in January. Four hundred pounds of 6-24-24 plus the recommended amount of ammonia nitrate was used at the time of planting. The wheat was planted on October 12, 1966.

One group of nine plots was used to get a total production figure. The other group was used to determine the effects browsing by deer has on wheat production. In each group of plots, three plots one meter in size, were picked mechanically on each of the 20 by 30 foot plots. This made a total of nine sampling plots for each treatment on each group of plots. To protect the wheat on these sampling plots, from being utilized by deer, protective cages constructed from 1 by 2 inch weld wire were used. On one group of plots, the wheat under these cages was clipped and weighed on March 31, 1967. This wheat was clipped approximately one inch from the ground. The weights obtained from the clipped wheat were used to compute a total production figure.

The wheat under the protective cages on the other group of plots was clipped three times from January through March 31, 1967. This wheat was clipped each time one inch from the ground. This periodic removal was to simulate deer use. The weights obtained from this wheat were used to compute a weight that represents a production figure where wheat recovered from simulated browsing.

1967-68 - To accomplish the objectives pertaining to wheat another section of the Mossy Head plot was used in 1967 and 68.

This section was prepared for planting by breaking the soil with a farm tractor and breaking plow and double disking. Fifteen study plots 10 feet by 30 feet were measured off, three plots wide and five plots long A ten foot, buffer strip separated the plots. Nine of these plots were planted with the lime and fertilization rate as recommended from the soil analysis; three were planted with a fertilization rate of 300 pounds 12-12-12 per acre, and three were planted with

no fertilizer and was used as a control. The seeding rate for all plots was two (2) bushed per acre.

These study plots were planted on October 12, by applying the required amount of lime and fertilizer, or fertilizer, seed, and then disked in.

On this plot the recommendation for lime and fertilizer per acre was three tons lime, 400 pounds of 6-24-24 or 0-20-20 per acre, and 150 pounds of ammonia nitrate or 300 pounds of nitrate of soda, plus top dressing with 150 pounds of ammonia nitrate in January. Four hundred pounds of 6-24-24 plus the recommended amount of ammonia nitrate was used.

On the nine plots planted with the recommended amount of lime, ammonia nitrate, and 6-24-24, three were top dressed with the recommended amount of ammonia nitrate on December 18, three were top dressed with the right amount on January 22, three were not top dressed.

Three plots, one meter in size, were picked mechanically on each of the 10 by 30 foot plots. This made a total of nine sampling plots for each treatment. To protect the wheat on the sampling plots, from being utilized by deer, enclosure cages were used. The wheat under these protective cages was clipped and weighed on April 15, 1968.

Findings:

1963-64 - The wheat on the plots was utilized from the time the four deer were released in the south 40. The utilization increased and it appeared that just about as fast as the wheat put on new growth it was eaten. The wheat under the protective cages grew at the expected rate. It was apparent as to the amount of wheat being utilized as the winter progressed.

The clipping of the wheat amounted to 30 pounds and six ounces in the green state. This computed to be a total of 6,142 pounds produced per acre of 12,284 pounds on the two acres. However, this does not take into consideration the fact that the wheat protected from the deer did not stool out. It is common knowledge in agricultural practices that if a plant such as wheat is bitten off by cattle, or deer in this case, that it will stool out. When this occurs there is an increase in the number of stems put out from the original plant. The wheat under the protective cages did not get bitten off; therefore, it did not stool out.

Considering the total amount of wheat (12,284 pounds) calculated to have been produced on the two acres it can be figured as what was available daily. Beginning on November 5, 1963 when the first deer was released in the south 40 and going to March 17, 1964 when the protected wheat was clipped it was found to be 133 days. By dividing this 133 days into the total produced on the two acres gives a quotient of 92 pounds available per day on two acres. Assuming there were three deer in this enclosure it would have been approximately 30 pounds available per day per deer.

The five pounds clipped wheat when air dried weighed 1 pound 1 ounce. By establishing a ratio of 1 pound 1 ounce to five pounds as compared to 12,284 pounds to X it was calculated that the total amount of wheat (12,284 pounds) air dried would have weighed 2610 pounds. This would have amounted to 1205 pounds air dried wheat per acre. Webb (1963) reports a production figure of 1415 pounds oven dried wheat produced on food plots in South Carolina.

Dividing 133 days (the number of days from the time the first deer was released in the south 40 until the wheat was clipped) into 2610 pounds, total air dry weight for two acres, we arrive at a figure of 19 pounds air dry wheat available daily. For four deer this would have been approximately 5 pounds available per day per deer. Or for three deer there would have been approximately 6 pounds air dry wheat available per deer per day.

The above daily availability figures indicates that there was enough wheat available each day to satisfy the requirements for the deer. However, due to the amount of natural browse consumed and as close to the ground as the plants were eaten there apparently was less produced than indicated. It is possible that several things could have happened. It is possible that a great amount of wheat was pulled up by the browsing animals. The wheat could have been eaten so close for so long that it lost its vigor.

The checks of the utilization on natural browse plants revealed those that remained green or were tardily deciduous were utilized heavily while the deciduous species were not utilized to a great extent. This was true in each corral. However, more usage was recorded in those species in the north 40.

The vegetation check on February 7, 1964 revealed that in the north 40 the percentage of stems browsed was greater than those utilized in the south 40.

The check of March 2, 1964 showed that in both corrals the utilization on some species was approximately the same. However, in the north 40 more of the deciduous species were utilized than in the south 40. In both corrals deer rode down some species, such as largeleaf gallberry, redbay, and yaupon in order to browse it, but it was more evident in the north 40.

Browsing of portions of leaves of redbay, whitebay, and sweetleaf was the first utilization noted after the enclosures were stocked. As the winter progressed utilization became more severe; all of the leaves and more of the stems were used. Stem use was especially heavy in the north 40 where no wheat had been planted.

In early March while making a check of the vegetation in the north 40, one of the mature deer was found dead. An examination of the bone marrow indicated it had died of malnutirtion. A short search was made for the other deer or tracks. Only one set of tracks was found. A few days later an organized search was made in the north 40 in an effort to locate the other deer. Another mature deer and one of the young ones were found dead. This accounted for three deer. The search was continued looking for the other young deer. It was not found. It could have died earlier or possibly escaped. It was established that three of the deer, two mature and one young, did die from malnutrition.

In the south 40 sightings of some of the deer on several occassions and by several individuals indicated that they were in good condition. An effort was made to try to drive these deer from this corral. During the drive only three deer were found. The deer were not removed from this enclosure on this date, but were removed later. Speculation as to what happened to the fourth deer in this enclosure is that it escaped sometime previous to the drive.

1964-65 - On the plot planted to wheat in the south 40 those study plots clipped three times produced less wheat than the control plots that were clipped once.

All 20 study plots produced a total (three clippings) of 20 pounds and one ounce green weight. The control plots (clipped once) produced 22 pounds and eight ounces green weight. Per acre basis this would have been 4356 pounds for the study plots and 4,878.7 pounds for the control. On a per acre basis this would be significant.

In the south 40 during the 1963-64 phase of this study wheat plots planted at the same fertilization and seeding rate as this plot produced 6,142 pounds green weight.

According to the above information it was found that on a per acre basis clipping of wheat to simulate browsing does have an affect on production of green weight on a per acre basis.

On the plot outside the corrals where the wheat was planted in strips at various fertilization rates the following was the amount of green forage produced projected to the acre basis: (1) 200 pounds 12-12-12 when planted and top dressed with 50 pound ammonia nitrate - 8,250 pounds; (2) 400 pounds 12-12-12 when planted 8,560 pounds; (3) 200 pounds 12-12-12 when 7,376 pounds; (4) 200 pounds 12-12-12 when planted and top dressed with 200 pound 12-12-12 - 13,126 pounds; (5) No fertilizer - control strip - 2,500 pounds.

On strip number four there were more deer tracks than on the other strip. This was very noticable from the time the wheat was top dressed on December 7 until the spring green up. Observations revealed the deer were utilizing this strip more than the others. The wheat on this strip had a noticable darker green color than the others.

1965-66 - The analysis of soils from the Mossy Head plot revealed that all nutrients checked for were low in availability. The analysis showed available phosphorus 19 parts per million, available potassium 20 p.p.m., available calcium 120 p.p.m., and available magnesium 53 p.p.m.. The pH. was determined to be 4.4.

To grow wheat on this soil, it was recommended that the least amounts of fertilizer needed per acre was three tons of lime, 100 pounds of nitrogen, 80 pounds of phosphate and 80 pounds of potash. The three tons of lime per acre was to correct the low calcium and pH. This lime would last approximately five years. To correct the phosphate and potash deficiency, it was recommended to apply 400

pounds of 6-24-24 or 0-20-20 per acre annually. Apply nitrogen, 150 pounds at time of planting or top dress after stand was obtained. Make another application as needed in January.

The analysis of the soils from the gas line plot showed available phosphorous to be medium with 60 p.p.m. available potassium low with 55 p.p.m., available calcium, low with 120 p.p.m., and available magnesium low at 53 p.p.m. For this plot the recommended fertilization rate was the same as for the Mossy Head Plot. However, two tons of lime per acre was recommended.

On the Mossy Head Plot the figures from the wheat clipped and weighed on the small study plots computed the following amounts produced per acre: (1) where lime, fertilizer (6-24-24) and ammonia nitrate was applied 27,326 pounds, (2) where fertilizer (12-12-12) only was applied - 10,570.6 pounds, and (3) no fertilization (control) 1404 pounds. The clipped wheat on the study plots on the gas line plot computed out at the following production rate per acre: (1) where lime, fertilizer (6-24-24), and ammonia nitrate was applied - 26,260 pounds, (2) where fertilizer (12-12-12) only was applied - 6,297.4 pounds, and (3) no fertilization (control) - 1,740.8 pounds.

Periodic observations revealed those study plots receiving the lime, fertilizer, and ammonia nitrate were a dark green in color. Deer browsed on those plots to a greater extent than on those just receiving fertilizer or no fertilizer.

The cost of producing the green forage will be computed on a ton (2000 pound) basis by using the costs involved in producing the total amount per acre by each treatment. Each study plot will be computed separately by treatment.

Each treatment on the Mossy Head Plot will be computed first.

Lime - 6-24-24 - ammonia nitrate treatment	
*Lime - 3 tons @ $8.65/ton - $25.95 -	$ 5.19
400 lb. 6-24-24 @ $3.40/100 lb. -	13.60
300 lb. ammonia nitrate @ $3.25/100 lb. -	9.75
Wheat seed - 2 bu. @ $2.75/bu.	5.50
**Operation of tractor - 3 hrs. @ $.65/hr.	1.95
***Labor - 2 utility laborers - 6 hrs. @$1.50/hr	.9.00
	$44.99

Total production 27,326 pounds per acre at $44.99 equal $3.28/per ton.

*Lime good for five years - this cost broken down as cost per year.

**Operation of tractor based on $5.00 per 8 hour day.

***Does not take into account the supervision of these laborers.

12-12-12 Fertilizer treatment

300 lbs. 12-12-12 @ $3.10/100 lb. -	$ 9.30
2 bu. wheat seed @ $2.75/bu.	5.50
Operation of tractor - 3 hrs. @ $.65/hr -	1.95
Labor - 2 utility laborers - 6 hrs. @ $1.50 / hr.	9.00
	$ 25.75

Total production 10,560 pounds per acre at $25.75 equal $4.88/ton.

No fertilizer - control

2 bu. wheat seed @ $2.75/bu.	$ 5.50
Operation of tractor - 3 hrs. @ $.65/hr.	1.95
Labor - 2 utility laborers - 6 hrs. @ $1.50/hr.	9.00
	$16.45

Total production 1404 pounds per acre @$16.45 - $23.40/ton.

For gas line plot the computations are below:

Lime, 6-24-24, ammonia nitrate treatment

*Lime - 2 tons @ $8.75/ton	3.46
400 lb. 6-24-24 @ $3.40/100 lb.	13.60
300 lb. ammonia nitrate @ $3.25/100 lb.	9.75
Wheat seed - 2 bu. @ $2.75 bu.	5.50
Operation of tractor - 3 hrs. @ $.65/hr.	1.95
Labor - 2 utility laborers - 6 hrs. @ $1.50/hr.	9.00
	$43.26

Total Production 26,260 pounds per acre at $43.26 equal $3.30/ton.

12-12-12 treatment

Cost same as for Mossy Head Plot

Total production 6,295.4 pounds per acre at $25.75 equal $8.18/ton.

No fertilizer control

Cost same as for Mossy Head Plot

Total production 1740.8 pounds per acre at $16.45 equal $18.90/ton.

1966-67 - The results of the soil analysis was discussed in the findings for the previous years.

On the plot, where the green forage was clipped and weighed to obtain a total production figure the computed amounts produced per acre was (1) where lime, fertilizer (6-24-24), and ammonia nitrate was applied 17,317 pounds per acre, (2) where fertilizer (12-12-12) only was applied 7,759 pounds per acre, and (3) no fertilization (control) 3,096 pounds per acre. The plots receiving the lime, ammonia nitrate, and fertilizer (6-24-24) was not top dressed during this segment.

On those plots clipped periodically to simulate deer browsing, the following amounts were computed to be produced, (1) where lime, fertilizer (6-24-24) and ammonia nitrate was applied 12,044.6 pounds per acre (2) where fertilizer (12-12-12) only was applied 4,835.5 pounds per acre, and (3) control 1,461.8 pounds. It is therefore assumed that deer browsing wheat does have a significant effect on the production of green forage.

1967-68 - The wheat clipped and weighed to obtain a total production figure computed the following results: (1) plots receiving lime, ammonia nitrate, fertilizer 6-24-24 and top dressed with ammonia nitrate in December - 22,491 pounds per acre, (2) plots receiving lime, ammonia nitrate, fertilizer (6-24-24), and top dressed in January - 21,591 pounds per acre; (3) plots receiving lime, ammonia nitrate, and fertilizer (6-24-24) and not top dressed 14,844 pounds per acre; (4) plots receiving fertilizer only (12-12-12) 5,848 pounds per acre, and (5) those plots not fertilized and used as a control 1,799 pounds per acre.

The wheat receiving the top dressing of ammonia nitrate in December immediately began to grow faster than those not receiving it. This did result in more high quality forage being available at an earlier date, but had little effect on overall production. The plots top dressed in January grew in the manner after the application of ammonia nitrate.

In conclusion it was readily seen that on food plots, where wheat is planted as a supplemental food, if the soils are analyzed and the recommended nutrients are added it makes a marked difference in the total production. The time wheat is top dressed with ammonia nitrate has an immediate effect on production. Throughout this

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATION

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-17 Title: Burning Study

Period Covered: July 1, 1967 through June 30, 1968

Abstract: On the Red Dirt Game Management Area, a three acre plot was established and burned during the summer of 1965. It will continue to be burned every two years until it is treated three times. A three acre control plot was established adjacent to it.

On Red Dirt, four plots, each two acres in size, were established and three of these were burned in March, 1965. These will be burned; one every year, one every two years, and one every three years until enough data is gathered to determine when to burn so the deer range will receive the greatest benefit. One plot will be used as a control. On the Catahoula Game Management Area, four plots, two acres in size, were established and receives the same treatment as those on Red Dirt.

Recommendations: It is recommended to continue this job until enough data can be collected and evaluated to determine if there are any differences in the effects burning at various times has on deer browse species.

Objectives: To determine the effects of summer burning on deer browse species along the stream bottoms in the longleaf pine timber type. To determine the effects of winter burning every year, every two years, and every three years on deer browse plants in the longleaf pine, and loblolly-shortleaf pine-hardwood timber type.

study it was observed that deer utilized wheat receiving lime, ammonia nitrate, fertilizer (6-24-24), and top dressed with ammonia nitrate more readily than that receiving the other treatments. This was evidenced by the amount of use and the amount of tracks and droppings on the various plots. The wheat highly fertilized (lime, ammonia nitrate, fertilizer or 6-24-24) had a dark green color while that with little or no fertilizer had a pale green or yellow color. Extreme cold had a yellow on killing effect on that wheat with little or no fertilizer while that highly fertilized remained dark green.

Prepared by: ______________________
Louis E. Brunett
Deer Study Leader

Approved by: ______________________
Lawrence D. Soileau
Project Leader

DATE: ______________________

Techniques Used: On the Red Dirt Game Management Area, in the stream bottom of Steep Hill Creek, two adjacent plots, each three acres in size, were established. One of these plots was burned in June, 1965. The other plot will not be burned and will be used as a control. These plots begin in the creek bottom and extend out to and includes a hillside. The treated plot is to be burned every two years, in June, until it is burned three times.

On Red Dirt, four plots, each two acres in size, were established. These plots begin in the creek bottom of Steep Hill Creek, and extend out onto the hillside. These plots will be burned in the following manner: (1) one burned every year, (2) one burned every two years, and (3) one burned every three years. Three of the plots were burned in March, 1965. One plot will not be burned as it will be used as a control. These plots will be used to accomplish the objectives related to the longleaf pine timber type.

On the Catahoula Game Management Area, in the loblolly-shortleaf pine-hardwood timber type, four plots were established. Each of these plots are two acres in size. The plots are side by side beginning in a stream bottom and extending out onto a hillside. Three of these plots were burned in January 1965. One plot will not be burned. The remaining plots will be burned as follows: one every year, one every two years, and one every three years.

On Red Dirt and Catahoula, the plot to be burned annually was treated in March 1966. During this segment the plots to be burned annually and the one to receive treatment every three years were treated in March, 1968.

The plot to be burned in the summer was first treated in 1965. It was treated again in June 1967.

After the 1965 growing season, deer browse species on all the study plots were marked and checked. They were marked so the same plant could be checked each year. The plants were checked by noting the condition of the main stem, counting the number of sprouts produced by each old stem, and by getting the total length, to nearest half inch, of the main stem of each sprout.

An effort was made to check on each plot, 10 plants of each specie selected for study. However, that number

of some species was not present on every plot. On Red Dirt, on the plots burned in winter, those species selected for study were yaupon (Ilex vomitoria), blackgum (Nyssa sylvatica), maple (Acer rubrum), and whitebay (Magnolia virginiana). On Catahoula, the species selected were ash (Fraxinus pennsylvanica), water oak (Quercus nigra), elm (Ulmus alata), maple, blackgum, and dogwood (Cornus florida).

On Red Dirt, on the plot burned in the summer, the species selected for study were dogwood, maple, whitebay, blackgum, and yaupon.

On the plots burned in the winter on both Red Dirt and Catahoula, permanent line transects were established to check the specie and number of forbs that would come in. On Catahoula, six transects one chain long, were established on each study plot. On Red Dirt, the transects were the same length, but only three were established on each plot. A surveyor's chain was used for the line. The chain was stretched between two points and all forbs directly under it were identified and counted.

On all plots, photography points were set up. Photographs were taken.

Findings: During this segment all necessary data was collected. The data collected so far has not been analyzed. An analysis was not to be made until the plot to be burned every three years was treated the second time. An analysis will be made after the data is collected at the end of the present growing season.

Prepared by:____________________
Louis E. Brunett
Deer Study Leader

Approved by:____________________
Lawrence D. Soileau
Project Leader

Date:________________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-18 Title: Timber-Browse Relationships

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Study plots are being established on the Saline Wildlife Management Area to gather data on the response of bottomland understory plants to two levels of thinning, medium and heavy, in three distinct plant communities. Plots have been established on the Russell Sage Wildlife Management Area to study eradication of overcup oak and bitter pecan by five methods and the effects this will have on the other vegetation.

Recommendations: It is recommended that this study be continued until enough conclusive data is obtained.

Objectives: To accomplish the objectives, study plots are being established on the Saline Wildlife Management Area in LaSalle and Catahoula Parishes and are completely installed on Russell Sage in Ouachita and Richland Parishes. On the Saline area, the objective is to gather data on the response of bottomland understory plants to two levels of thinning, medium and heavy, in three distinct plant communities. The objectives of the Russell Sage study are: (1) to determine an effective method of eradicating overcup oak-bitter pecan understory in bottomland hardwoods; (2) determine the change in the vegetation pattern following the various treatments; (3) determine the approximate amount of animal useage on browse species within the study area; (4) determine survival rate of underplanted hardwoods on treated areas.

Techniques Used: On the Saline Wildlife Management Area 27 plots, each four acres in size, are being established. These plots are grouped in lots of nine. Each group of plots represents one of three plant communities.

Those communities are: (1) overcup oak-bitter pecan, (2) nuttall oak, ash, overcup oak, bitter pecan with the absence of palmetto, and (3) ash, overcup oak, bitter pecan, water oak, nuttall oak, rock elm and palmetto. Each community represents a different topographic elevation. Conducting an inventory and logging of the plots will be accomplished in the fall of 1968.

Each plot within the group of nine will be four acres in size. In each group three will be subjected to heavy thinning, three to a medium thinning, and three will be used as a control. Smaller study plots will be established around the center of each four acre plot. The exact study scheme has not been decided. This will be determined after each plot is treated.

On the Russell Sage Wildlife Management Area the procedures are different than those for the study on the Saline area. Two study areas were selected in an overcup oak-bitter pecan stand. The dimensions of each study area are 22 by 23 chains. Four base lines, 22 chains in length and 5 chains apart, have been established in each area. Along the base line, 6 study plots measuring two chains square with a buffer zone between have been established. Six treatments were applied to the plots on each line. This provided for 8 replications of each treatment, occurring within the total 8 lines; all were selected randomly. The six treatments are: (1) burning, (2) mist blown herbicide, (3) direct flame treatment with flame thrower, (4) mechanical-hand cut and herbicide treated stumps, (5) bulldozer with brush blade and (6) control. Each treatment was underplanted with nuttall oak (Quercus nuttalli) seedlings. On these, seedlings survival and height growth will be measured.

A plot measuring 40 links square was established in the center of each two chains square plot and will be divided into 16 milacre plots, two of which were selected randomly for intensive study. One was fenced deer and rabbit proof, the other unfenced. Animal usage will be noted by monthly comparisons of fenced to unfenced plots. Composition studies are being made to determine the identity and the number of species present in the two selected milacre plots. The frequency, or percentage of the total number of plants that each specie comprises, will also be determined.

Permanent camera stations are established at each milacre plot, fenced and unfenced, for photo comparisons. Photos will be taken quarterly if apparent changes occur.

Findings: All study plots on Russell Sage were installed and all necessary data to date has been collected. There is one group of nine plots to be established on Saline.

Prepared by:________________
Louis E. Brunett
Study Leader

Approved by:________________
Lawrence D. Soileau
Project Leader

DATE:____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-20 Title: Population Dynamics

Period Covered: July 1, 1967, through June 30, 1968

Abstract: On the Red Dirt Game Management Area a deer trapping operation was conducted. The area was divided into five trapping units. One hundred and ten traps were used. These were allocated to each unit on an acreage basis. Fifty-nine deer were caught and released at the trap site prior to the 1967 hunt. Thirty-two animals were caught and released at the trap site in the spring of 1968.

Recommendation: It is recommended that this study be continued for two more years.

Objectives: The objective of this job is to study population dynamics of a managed deer herd. The specific objectives are to determine: (1) pre and post season population estimates; (2) percent killed by hunters; (3) total annual mortality; (4) rate of kill by sex and age classes; (5) to relate browse evaluation surveys to population estimates; (6) to check dentition of known aged deer as a quality control of aging techniques generally used and (7) to determine use on free choice of minerals by a deer track count.

Techniques Used: This study was started in the fall of 1966 and is being conducted on the Red Dirt Game Management Area. To accomplish the objectives of this job, 110 box traps were used to catch, mark,,and release at the trap site as many deer as possible.

The sampling scheme called for dividing the area into five trapping units. All quarter sections

in each unit were consecutively numbered. Quarter sections in which traps would be located were randomly selected. One suitable trapping site was located within the selected quarter section. The number of trap sites selected was weighed according to the acreage in each subdivision.

The bait used was soybeans during the winter and salt, iodine, and potassium in the spring. Previous trapping experience on Red Dirt indicated that soybeans was a readily accepted bait during the winter while salt was better in the early spring. During the summer of 1967 a study of minerals and their use by deer was conducted on Red Dirt. It showed deer to readily accept salt, iodine, and phosphoric acid. That is why these were used as bait.

Informatinn gathered on each deer caught included date caught, trap number, ear tag number, ear tattoo number, sex, weight, and age. In the remarks column of the trapping record other information recorded was as follows: location of release, physical condition, retraps, tag numbers from years prior to this study, and any other information considered pertinent.

The purpose and requirements of mineral in the physiology of deer has been largely unknown for years. It is known that one mineral, salt has been sought by deer since the history of man in North America. It has been used as a bait in trapping deer for biological reasons and natural salt licks have been used as a place of ambush by Indian hunters as well as market hunters. In years past deer on Red Dirt have shown such a desire for salt and possibly other minerals that they have consumed parts of dirt roads on the area. These same sections of dirt road are visited year after year during the spring. It is known that deer on some areas rich in certain minerals grow bigger, produce greater antler formation or both.

The purpose of this study was to test five minerals in conjuction with salt and a control as attractents for deer. Minerals showing a significant attractiveness will be tested with salt in a deer trapping operation on the Red Dirt W.M.A. during the spring trapping period in 1968.

This study would have been started at an earlier date, but due to construction time and interference with the present deer trapping operation it was delayed until late July. Even at this late date we would find out if deer desired salt or other minerals in the summer and fall.

Five minerals were selected for testing with salt and a control plot containing soil. Minerals selected were iodine, phosphorus, calcium, sulphur, and magnesium. These particular minerals were selected because they are physiologically required by many ruminants. The Animal Science Department at L.S.U. suggested that we try these in preference to other minerals.

Surface and subsurface soil tests were taken on the three sites selected for mineral testing. Analysis was conducted by the L.S.U. Soil Testing Laboratory.

SURFACE

Available p.p.m.

SITE	LOCATION	P	K	Ca.	Mg.	pH
1	Weldon Road	11	35	130	35	5.2
2	Ranch House Rd.	5	30	40	33	5.1
3	Bicolor Area Rd.	5	45	40	38	5.0

SUBSURFACE

Available p.p.m.

SITE	LOCATION	P	K	Ca.	Mg.	pH
1	Weldon Road	19	35	40	34	5.1
2	Ranch House Rd.	8	30	40	12	5.0
3	Bicolor Area Rd.	5	35	40	34	5.0

A randomized block design with three replications was used in site and plot placement. Three sites with seven plots on each were located on three different localities of the Red Dirt W.M.A. Sites were selected for ease of plot placement, uniformity of soil type, and for geographic distribution. Sites selected were off the Weldon Road (site 1), near the Ranch House Road Oil Well Food Plot (site 2) and near the Bicolor Road and Lotus - Gorum road junction. Random selection of minerals for each plot was accomplished by drawing names from a hat. All plots were located on a line.

Plots were constructed by scraping the duff and top one to two inches of soil away with a bulldozer. Repeated disking with a tractor followed scraping. This was done for further vegetation and root removal. The final preparation was dragging with a cultipacker for a smooth track counting surface. Plots ranged from 60 - 75 feet in diameter and were approximately 75 - 100 feet apart.

The five minerals as well as salt and a pure soil control were placed in 2' X 2' X 6" wooden boxes. Sides of the boxes were constructed from 1' X 6' boards, while the bottom was made from plywood. Soil from the plot was added to the mineral box as a filler. The box was then buried flush with the ground in the center of the plot.

Track counts were divided into two catergories: tracks coming within two feet of the mineral box and those coming within twenty-five feet of the mineral box. The two foot count was used because it was felt that a deer could walk within two feet of the box and still lick from it. The twenty five foot count was used for a number of reasons. The first reason was to indicate the availability of deer on the different sites. Another reason was to give some idea of the drawing power of each mineral. Still another reason was to help with the actual counting to avoid duplication of sets of tracks.

All sets of tracks were counted as they entered an area and were followed until they left an area. They were stamped out while being counted to avoid duplication. It is conceivable that the same deer may cross the box or plot more than once, but even if this is so it makes no difference for all treatments are treated equally.

Periodically the plots had to be dragged with a brush top or even disked to create a smooth tracking surface. Fortunately we were blessed with abundant rainfall, making for ideal track count.

Some particular problems encountered were wild hogs tracking up a plot, armadillos rooting in mineral boxes, and heavy longleaf needle fall on some plots.

Findings:

During the trapping operation of the winter of 1966-67, 29 different deer were caught and

released at the trap site. During the fall trapping of 1967 and prior to the hunt on the area, 30 different deer were caught and released at the trap site. During the managed deer hunt 29 of the 59 tagged animals were killed.

During the trapping period after the hunt and on through the spring of 1968, 32 different deer were released at the trap site.

The results of the track counts around the minerals used indicated deer preferred iodine and phosphorus.

Prepared by: ______________________ Approved by: ______________________
Louis E. Brunett — Deer Study Leader
Lawrence D. Soileau — Project Leader

DATE: ______________________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: II - 2 Title: Aerial Census of Louisiana Waterfowl

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

Six statewide waterfowl inventories were run during this fiscal year. All estimates were made from aircraft which flew fixed transect lines or over specific concentrations of waterfowl. The final winter inventory indicated that in mid-January an estimated 5,182,300 waterfowl, (ducks, geese and coots) were present in Louisiana.

Recommendations:

1. Conduct aerial census monthly..
2. Estimate total numbers of waterfowl using refuges.
3. Continue off-shore estimates of lesser scaup.
4. Change east-west line transects to run north-south.
5. Reduce up-state areas where total numbers of waterfowl are estimated to Catahoula Lake only.
6. Use Cessna 210 for all aerial censusing of waterfowl.

Objectives:

1. To provide periodic estimates of wintering waterfowl population in Louisiana's marshes.
2. To provide periodic estimates of waterfowl use on state and federal refuges.
3. To improve present estimates of lesser scaup populations.
4. To explore methods of improving aerial estimates of waterfowl.

Techniques Used:

The techniques used to estimate waterfowl populations in the fiscal year 1967-68 were: (1) the fixed line transect method as described in the Louisiana waterfowl populations study, final report, July 1949-June 1961, and (2) estimates of total numbers of waterfowl on specific high concentration areas.

Findings: The following is a general summary of the 6 aerial inventories conducted during this fiscal year:

The first complete waterfowl inventory of Louisiana was made during the week of the 9th to the 13th of October. An estimated total of 217,000 ducks, 11,650 geese and 37,500 coots were in the state at that time. During the second statewide inventory, October 23-27, the estimated totals of duck and coots had risen to 1,101,500 and 340,000 respectively. Geese were not censused until the mid-winter inventory during January. The third inventory figures showed an estimate of 2,150,000 ducks and 538,000 coots during the period November 6 through 10. The fourth waterfowl population estimate, made from November 20th through the 24th, indicated that 3,093,000 ducks and 538,000 coots were present in the state. Aerial estimates made during the fifth inventory period, December 18th through the 22nd, showed a total of 3,268,100 ducks and 604,000 coots present in Louisiana.

The final state wide estimate of Louisiana's wintering waterfowl population was made a joint effort between state and federal observers. The mid-winter inventory estimates indicated that a total of 4,199,000 ducks, 368,700 geese and 626,500 coots were present during the period January 15-19, 1968.

Prepared by:____________________ Approved by:____________________
Hugh Bateman Larry Soileau
Study Leader Project Leader

Date:____________________

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE LOUISIANA

TYPE OF COVERAGE: Transect and Total Count

DATE: October 9-13, 1967

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	Southwest Louisiana	Southeast Louisiana	Central Louisiana	Northeast Louisiana	Northwest Louisiana	State Totals
Mallard	1,000	500	100	0	0	1,600
Black Duck	0	0	0	0	0	0
Gadwall	3,000	4,000	500	0	100	7,600
Baldpate	9,000	11,000	2,500	50	100	22,650
Green W. Teal	14,000	6,000	1,500	200	0	21,700
Blue W. Teal	11,000	4,000	2,000	500	200	17,700
Shoveler	8,000	2,000	1,000	100	100	11,200
Pintail	48,000	35,000	2,000	500	50	85,550
Wood Duck	*	*	*	*	*	*
Mottled Duck	21,000	28,000	0	0	0	49,000
Redhead	0	0	0	0	0	0
Canvasback	0	0	0	0	0	0
Scaup	0	0	0	0	0	0
Ringneck	0	0	0	0	0	0
Ruddy	0	0	0	0	0	0
Merganser	0	0	0	0	0	0
TOTAL	115,000	90,500	9,600	1,350	550	217,000
Canada Geese	0	0	0	0	0	0
Whitefront G.	8,000	0	25	0	0	8,025
Blue & Snow G.	3,500	50	75	0	0	3,625
TOTAL	16,500	50	100	0	0	11,650
Coots	20,000	14,000	1,500	500	1,500	37,500

*Woodducks not surveyed

The first complete waterfowl inventory of Louisiana was made during the week of the 9th to the 13th of October. A total of 217,000 ducks, 11,650 geese and 37,500 coots were in the state at that time.

October is a month of major migration of waterfowl into Louisiana. Numbers of waterfowl will double or even triple from one week to another. One instance is that Marsh Island gained 8,000 blue and snow geese over night. The middle of October is the traditional arrival time of the blue and snow geese into Louisiana. This should remain the same for a long time to come unless more Federal programs are started to short stop them up north before they get here.

Marsh conditions are approximately the same as last year. This spring was exceptionally wet (equal approximately to 1940 flood). This in turn didn't allow the annual grasses to grow and produce seed. There are plenty of aquatics, but little of the preferred seed plants. The high water in May also curtailed mottled duck nesting in Southwest Louisiana.

LOUISIANA WILD LIFE & FISHERIES COMMISSION
400 ROYAL STREET
NEW ORLEANS, LOUISIANA 70130

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE: [illegible]

TYPE OF COVERAGE: Transect and Total Aerial Count DATE: October 23-27 67

REPORTED BY: Clark M. Hoffpauir

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	26,000	19,000	3,000	500	500	49,000
Black Duck	0	0	0	0	0	0
Gadwall	109,000	112,000	12,000	1,000	1,000	235,000
Baldpate	43,000	61,000	5,000	500	500	110,000
Green W. Teal	117,000	114,000	5,000	4,000	1,000	241,000
Blue W. Teal	16,000	9,000	2,000	500	500	28,000
Shoveler	46,000	33,000	1,000	500	500	81,000
Pintail	186,000	89,000	14,000	1,000	1,000	291,000
Mottled Duck	27,000	30,000	0	0	0	57,000
Wood Duck	*	*	*	*	*	*
Redhead	0	0	0	0	0	0
Canvasback	0	0	0	0	0	0
Scaup	2,000**	2,000**	0	500	0	4,500
Ringneck	3,000	2,000	0	0	0	5,000
Ruddy	0	0	0	0	0	0
Merganser	0	0	0	0	0	0
Total	575,000	471,000	42,000	3,500	5,000	1,096,500
Canada Geese		GEESE NOT CENSUSED: WILL BE				
Whitefront G.		CONDUCTED BY THE U. S. FISH &				
Blue & Snow G.		WILDLIFE SERVICE AT A LATER DATE.				
Total						
Coots	141,000	181,000	5,000	9,000	4,000	340,000

* Not Censused
** Offshore Gulf census not conducted

The tremendous increase of waterfowl coming into Louisiana is very evident if compared to the previous inventory. This is still a major migration period of waterfowl into Louisiana. Cold fronts passing through the state (27th-30th) have moved large numbers of ducks into the state that are not reported on this sheet. This includes gadwalls, widgeons and other species moving into Northwest Louisiana.

A new development in waterfowl usage is occurring in Southwest Louisiana due to water-leveling of rice fields. Water-leveling is a practice of flooding a plowed field and then dragging it. This time of the year rice farmers are water-leveling their rice fields and large numbers of pintail, widgeon, teal and shoveler use these waters and mud fields. The rice field belt in Southwest Louisiana has a large number of ducks and geese in it now and they may remain there during the season.

Southeast Louisiana looks exceptionally good for the coming waterfowl season. Large concentrations are found south of Houma and in the Des Allemands area.

LOUISIANA WILD LIFE AND FISHERIES COMMISSION
400 Royal Street
New Orleans, Louisiana

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE LOUISIANA

TYPE OF COVERAGE: Aerial Survey DATE: November 6-10, 1967

Transect & Total Count REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	48,000	62,000	12,000	3,000	500	125,500
Black Duck	0	0	0	0	0	0
Gadwall	186,000	141,000	8,000	2,000	2,000	339,000
Baldpate	91,000	78,000	5,000	1,500	1,500	176,500
Green W. Teal	203,000	127,000	14,000	1,000	1,000	346,000
Blue W. Teal	54,000	38,000	4,000	500	500	97,000
Shoveler	51,000	49,000	3,000	x	1,000	104,000
Pintail	218,000	127,000	30,000	x	2,000	377,000
Mottled Duck	27,000	30,000	0	0	0	57,000
Wood Duck	*	x	x	x	x	
Redhead	500	3,000	0	0	0	3,500
Canvasback	2,000	7,000	500	500	500	10,500
Scaup	xx 85,000	xx 400,000	xx 2,000	xx 1,500	xx 1,000	489,500
Ringneck	11,000	3,000	2,000	2,000	3,000	21,000
Ruddy	1,000	1,000	500	8,000	100	10,600
Merganser	1,000	2,000	0	0	0	3,000
TOTAL	978,500	1,068,000	81,000	20,000	12,600	2,150,100
Canada Geese						
Whitefront G.		To be conducted by				
Blue & Snow G.		USF&WS				
TOTAL						
Coots	240,000	280,000	5,000	9,000	4,000	538,000

x - not censused

Waterfowl are now increasing in Louisiana daily with the arrival of new migrants. Southwest and Southeast Louisiana look especially good at this time. The Pass A Loutre shooting area has approximately 40,000 ducks on it now. These are mostly widgeon, pintail, gadwall and blue winged teal. Hunters should enjoy some excellent shooting there.

The mallard population is increasing gradually but the bulk of the mallards haven't arrived. Catahoula Lake in central Louisiana should have over 75,000 ducks by opening day. In Northeast and Northwest Louisiana ducks are scattered. The best area upstate is the prairie section of Black Lake (Campti area) that has approximately 8-10 thousand ducks.

The goose inventory will be made at a later date. All indications are that goose hunting will be very good in the state this year. This is particularly true in regards to the white front goose.

LOUISIANA WILDLIFE AND FISHERIES COMMISSION
400 ROYAL STREET
NEW ORLEANS, LOUISIANA 70130

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE LOUISIANA

TYPE OF COVERAGE: Total & Transect DATE November 20-24, 1967

Aerial Count REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units-Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	81,000	70,000	15,000	6,000	2,000	174,000
Black Duck	1,000	1,000	2,000	1,000	500	5,500
Gadwall	241,000	212,000	51,000	4,000	3,000	511,000
Baldpate	180,000	141,000	27,000	2,000	1,500	351,500
Green W. Teal	261,000	182,000	17,000	2,000	1,000	463,000
Blue W. Teal	91,000	96,000	2,000	1,000	500	140,500
Shoveler	64,000	58,000	4,000	2,000	1,000	129,000
Pintail	293,000	192,000	45,000	2,000	2,000	534,000
Mottled Duck	31,000	34,000	0	0	0	65,000
Wood Duck	*	*	*	*	*	*
Redhead	500	xx 3,000	100	0	0	3,600
Canvasback	2,000	7,000	500	500	500	10,500
Scaup	xx 162,000	450,000	2,000	2,000	1,000	617,000
Ringneck	13,000	4,000	3,000	2,000	3,000	25,000
Ruddy	1,000	1,000	500	8,000	100	10,600
Merganser	1,000	2,000	0	0	0	3,000
TOTAL	1,422,500	1,453,000	169,100	32,500	16,100	3,093,200
Canada Geese		To be conducted by				
Whitefront G.						
Blue & Snow G.			USF&WS			
TOTAL						
Coots	240,000	280,000	5,000	9,000	4,000	538,000

* not censused
xx offshore scaup census not conducted

Waterfowl are continuing to move into Louisiana but not as rapidly as anticipated. The lack of any great amount of cold weather and storms to the north is the probable cause of the slower movement of ducks into the state. Mallards in particular are in fewer numbers than expected. However, by November 24th concentrations of ducks were evident along the Mississippi River and adjacent bar pits.

The main reason for scarcity of waterfowl in Northeast Louisiana is the extreme drought conditions. Ducks are using the permenant water areas and probably will continue to build up in these places until there is enough rainfall to supply other areas into which they can disperse.

Conditions in Northwest Louisiana seem about normal for this time of the year. It is interesting to note that on Caddo, Cross and Bistineau Lakes the duck decoys far out-number the ducks present. This indicates considerable waterfowl hunter interest in this part of the state.

The sportsmen of Southwest and Southeast Louisiana will be pleased to know that conditions in these areas are quite favorable. Pass-a-loutre Shooting Area had an estimated 180,000 ducks on it during this inventory.

Central Louisiana waterfowl hunters will note that Catahoula Lake had a large concentration of ducks, comprising primarily Pintails, Gadwalls and Baldpates.

LOUISIANA WILD LIFE & FISHERIES COMMISSION
400 ROYAL STREET
NEW ORLEANS, LOUISIANA 70130

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE LOUISIANA

TYPE OF COVERAGE: Total and Transect Count DATE: December 18-22, 1967

REPORTED BY: Clark Hoffpauer

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	120,000	97,000	40,000	14,000	2,000	273,000
Black Duck	1,000	1,000	1,000	1,000	500	4,500
Gadwall	275,000	221,000	50,000	4,000	3,000	553,000
Baldpate	217,000	203,000	28,000	2,000	1,500	451,500
Green W. Teal	284,000	197,000	20,000	2,000	2,000	505,000
Blue W. Teal	63,000	74,000	2,000	1,000	1,000	141,000
Shoveler	60,000	61,000	3,000	1,000	500	125,500
Pintail	221,000	161,000	42,000	2,000	2,000	428,000
Mottled Duck	31,000	34,000	0	0	0	65,000
Wood Duck	*	*	*	*	*	*
Redhead	2,000	20,000	500	500	500	23,500
Canvasback	4,000**	8,000**	8,000	1,000	500	21,500
Scaup	162,000	450,000	8,000	5,000	1,000	626,000
Ringneck	21,000	5,000	6,000	2,000	3,000	37,000
Ruddy	1,000	1,000	500	8.000	100	10,600
Merganser	1,000	2,000	0	0	0	3,000
TOTAL	1,463,000	1,535,000	209,000	43.500	17,600	3,268,100
Canada Geese			TO BE CONDUCTED BY			
Whitefront G.			UNITED STATES FISH & WILDLIFE			
Blue & Snow Geese			SERVICE			
TOTAL						
Coots	280,000	301,000	8,000	10,000	5,000	604,000

* Not Censused

** Southeast & Southwest Lesser Scaup were censused in marshes, lakes and along Gulf Coast beaches. Lesser Scaup farther than 1 mile off shore were not counted.

Louisiana at this time of the year undoubtedly has more ducks in the state than shown on the inventory sheet. This is due to the tremendous amount of rain occurring in December. Nearly every rice field and many fallow fields are flooded throughout the state and this in turn causes the ducks to disperse over a large area, making it very difficult to count them. Another reason why our numbers of ducks have not increased greatly in Louisiana is because of the warm weather farther up the flyway. What is needed is a good hard cold front to drive the birds down here. As this is not likely to occur before the close of the season, it will be of little consequence to the duck hunters.

LOUISIANA WILD LIFE & FISHERIES COMMISSION
400 ROYAL STREET
NEW ORLEANS, LOUISIANA 70130

MID-WINTER WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Aerial Transect and Total Count

DATE: January 15-19, 1968

REPORTED BY: C. Hoffpauer, Brazda, Summerell & Perrou

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	214,000	99,000	44,000	21,000	2,000	380,000
Black Duck	3,000	2,000	2,000	1,000	500	8,500
Gadwall	426,000	266,000	50,000	9,000	3,000	754,000
Baldpate	321,000	213,000	32,000	7,000	2,000	575,000
Green W. Teal	328,000	183,000	22,000	2,000	1,000	536,000
Blue W. Teal	58,000	68,000	3,000	1,000	1,000	131,000
Shoveler	85,000	52,000	11,000	6,000	1,000	155,000
Pintail	453,000	186,000	80,000	48,000	2,000	769,000
Mottled Duck	30,000	33,000	0	0	0	63,000
Wood Duck	*	*	*	*	*	*
Redhead	1,000	22,000	0	0	0	23,000
Canvasback	500	5,000	9,000	0	500	15,000
Scaup	165,000	536,000	8,000	2,000	1,000	712,000
Ringneck	25,000	9,000	22,000	3,500	3,500	63,000
Ruddy	1,000	1,000	500	8,000	100	10,600
Merganser	1,000	3,000	0	0	0	4,000
TOTAL	2,111,500	1,678,000	283,500	108,500	17,600	4,199,100
Canada Geese	1,500	0	200	0	0	1,700
Whitefront G.	26,000	0	0	0	0	26,000
Blue & Snow Geese	281,000	60,000	0	0	0	341,000
TOTAL	308,500	60,000	200			368,700
Coots	287,000	308,000	8,500	11,000	12,000	626,500

* Because of time and difficulties involved in surveying Atchafalaya Floodway, wood ducks were not censused.

A total of 4,199,100 ducks, 368,700 geese and 626,500 coots were found in Louisiana during the 1968 mid-winter inventory. This amounted to 5,194,300 waterfowl in Louisiana during the week of 15-19 January.

Water conditions in Louisiana during 1967 were almost identical to 1966. There was flooding in the spring and summer and plenty of winter rain. The high water in the spring and summer prevented seed producing annuals to grow and the late winter rains scattered the ducks all over Louisiana. Some water levels in the marsh have risen eighteen inches and remained there for a period of a year. The large cleared land for soybean planting in Northeast and Central Louisiana proved to be a haven for ducks; often they were flooded by winter rains. Very large concentration of pintail and mallards were found in these harvested soybean fields. In the future this may prove to be a valuable waterfowl area.

One big problem that Louisiana faces every year is how to aerial census the flooded Atchafalaya and Blind River bottom lands. These two areas are approximately 110,000 acres in size. They both contain large areas of flooded pin oaks which are ideal feeding grounds for mallards and wood ducks. It is almost impossible to census these areas due to the density of the trees which in turn cut down on the visibility. Therefore these areas were not censused and no estimate was made as to the number of ducks in them.

The whitefront goose count seems to be down in Louisiana this year but it is the author's opinion that the geese were just too scattered to be counted without missing large numbers. This also holds true for all the ducks.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No: W-29R-15 Name: Statewide Wildlife Investigations

Job No: II-4 Title: Wood Duck Trapping and Banding

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Continued effort in the wood duck trapping program has increased the number of birds banded from 599 in 1966-67 to 693 for this fiscal year.

Recommendation: This job should be continued with emphasis placed on both bait trapping and drive trapping of wood duck roosts.

Objective: To band wood ducks as part of the Mississippi Flyway cooperative wood duck trapping program.

Techniques Used: Conventional bait trapping and roost drive trapping were the techniques used to trap the wood ducks banded during the fiscal year.

Findings: Bait trapping of local wood ducks and roost driving of wintering concentrations have provided Louisiana with trapping techniques that can provide substantial numbers of banded wood ducks. One roost drive resulted in 270 wood ducks being banded. A total of 693 wood ducks was banded during this fiscal year.

Prepared by: ______________________
Hugh Bateman
Study Leader

Approved by: ______________________
Larry Soileau
Project Leader

Date: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SGEMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: II-6 Title: Cooperative Canadian Banding

Period Covered: July 1, 1967 through June 30, 1968

During 1967, L. D. Soileau traveled to Lake Kinistino, Saskatchewan, Canada to band ducks on the Waterhen Marshes. Mr. Soileau and his crew banded 1,934 mallards and 463 pintails.

Prepared by: ______________________
Hugh Bateman
Study Leader

Approved by: ______________________
Larry Soileau
Project Leader

Date: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job. No.: II-7 Title: Cooperation with Mississippi Flyway Council Technical Section

Period Covered: July 1, 1967 through June 30, 1968

The waterfowl study leader cooperated with the Mississippi Flyway Council Technical Section on all assignments.

Prepared by: ____________________ Approved by: ____________________
Hugh Bateman Larry Soileau
Study Leader Project Leader

Date: ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No: II-9 Title: Evaluation of Physical Changes in Marsh Ponds on the Wisner and Biloxi Development Projects

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Field samples were collected on vegetation and salinity and comparisons made between study ponds and controls. All ponds behind weirs and earthen dams had higher amounts of vegetation in them than natural marsh ponds.

Recommendations: This study should be continued in order to evaluate water control structures in marsh development.

Objectives: To investigate the physical and vegetative changes in marsh ponds resulting from stabilization of water levels by man-made control structures.

Techniques used: The techniques used to investigate physical and vegetative changes in the study ponds were those described in the completion report for Job No. 10, Work Plan II, of Project 29R-7 and 8.

All field sampling was conducted by Fish and Game personnel of District VIII.

Findings: All plots on marsh ponds where water levels were stabilized by wooden or earthen dams contained widgeon grass while natural ponds used as controls did not produce this aquatic vegetation. Salinities recorded were similar on all ponds.

VEGETATIVE SAMPLING
Widgeon Grass

Earthen Dams		Wooden Dams		Controls	
Plot No.	Vol. Ml. of Vegetation	Plot No.	Vol. Ml. of Vegetation	Plot No.	Vol. Ml. of Vegetation
1	3,045	1	3,895	1	0
2	1,185	2	13,965	2	0
3	8,755	3	11,145	3	0
4	5,815	4	14,000	4	0
5	9,875	5	1,800	5	0
6	1,455	6	7,450	6	0
Totals	30,130		51,255		0

SALINITY READINGS

Earthen Dams		Wooden Dams		Controls	
Plot No.	Ppt.	Plot No.	Ppt.	Plot No.	Ppt.
1	16.2	1	12.2	1	15.7
2	16.3	2	14.9	2	12.3
3	15.8	3	8.1	3	20.6
4	18.8	4	17.6	4	19.0
5	17.5	5	15.8	5	16.5
6	18.6	6	11.4	6	17.6
Average	17.2		13.3		17.0

Prepared by:____________________ Approved by:________________________
Hugh Bateman
Study Leader

Larry Soileau
Project Leader

Date:____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job. No.: II-12 Title: Mottled Duck Transplant Study

Period Covered: July 1, 1967 through June 30, 1968

Abstract: No mottled ducks were raised or released this fiscal year.

Recommendation: This study should be terminated.

Objective: This job was designed to evaluate the mottled duck as a transplant to permanent fresh water areas of up-state Louisiana.

Findings: No information was gathered this fiscal year.

Prepared by: ______________________
Hugh Bateman
Study Leader

Approved by: ______________________
Larry Soileau
Project Leader

Date: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: II-13 Title: Effects and Extent of Oil Field Canals on Louisiana Marshes

Period Covered: July 1, 1967 through June 30, 1968

Abstract: No information was gathered on this project for 1967-68.

Recommendations: It is recommended that this job be terminated.

Objectives: Determine effect on portions of Louisiana marshes as influenced by oil field canals. Determine extent of existing canals.

Findings: Due to problems with photographic equipment and techniques as well as the inavailability of aircraft, no information was gathered on this project.

Prepared by: ______________________
Hugh Bateman
Study Leader

Approved by: ______________________
Larry Soileau
Project Leader

Date: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: II-14 Title: Experimental Teal Season

Abstract:

A bait trapping program and observation of teal hunters was carried out on Catahoula Lake. Trapping resulted in the banding of 2058 blue-winged teal and 49 individual hunter observations were made.

Recommendations:

1. This job should be continued in order to gather information on the blue-winged teal.
2. The trapping program should be confined to Catahoula Lake and Rockefeller Refuge.

Objectives:

1. To assist the BSFW in the evaluation of the Experimental Teal Season in Louisiana.
2. To determine, through band recoveries, the migrational habits, distribution and mortality rate among blue-winged teal that migrate through Louisiana.

Techniques used:

Conventional bait traps were used to catch all teal banded on Catahoula Lake. Observations of teal hunters were made from duck blinds, oil well platforms and other vantage points with binoculars.

Findings:

Bait trapping on Catahoula Lake provides an excellent opportunity for banding large numbers of blue-winged teal, 2058 being banded this fiscal year. Forty-nine spy blind observations were made of teal hunters on Catahoula Lake by Fish and Game personnel from Districts III and IV.

Prepared by:____________________
Hugh Bateman
Study Leader

Approved by:____________________
Larry Soileau
Project Leader

Date____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: 3 Title: Call-count Survey

Period Covered: July 1, 1967 through June 30, 1968

Abstract: The call-count survey indicates an 11.4% decrease in the number of calling doves heard from the 1967 level.

Recommendations: The call-count survey should be continued as part of the national program of breeding population measurement. It has serious limitations, but is the only tool presently available for determining trends in the breeding population.

Objective: This job is designed to provide an index and furnish a trend in the mourning dove population.

Procedures Used: The call-count survey was conducted along predetermined routes in accordance with a set of operational procedures.

Findings: The call-count survey indicates an 11.4% decrease in the number of calling doves heard from the 1967 level as indicated in Table I.

Prepared by: ______________________
Larry Soileau
Study Leader

____

TABLE I

CALL-COUNT ROUTES

Comparison of 1967 and 1968 Routes

Route No.	No. of Doves Heard 1967	 1968
0860	15	2
0900	12	12
0940	63	72
1050	36	31
1100	25	27
1210	28	21
1211	0	2
1220	1	3
1340	6	6
1350	21	22
1370	0	0
1371	14	7
1670	9	9
1980	6	1
2020	1	1
2160	9	0
2170	0	2
2128	8	8
2430	1	0
TOTAL	255	226
Average No. Per Route	13.4	11.9

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: 6 Title: Dove Kill Estimation

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

The telephone survey of dove hunting in the Eastern Management Unit resulted in estimates of 744, 200 hunters, 4, 313, 200 trips and 20, 411, 900 birds killed. Within the state of Louisiana, an estimated total 66, 100 hunters killed 2, 099, 200 doves during 435, 700 trips.

Recommendation:

The telephone survey as a method of estimating dove harvest should be continued as part of the Eastern Management Unit telephone kill survey.

Objective:

The job was designed to provide an estimated index of dove hunting participation and harvest in the Eastern Management Unit.

Techniques Used:

A random sample of residential telephones was selected and called by personnel of the Institute of Statistics, North Carolina State University. All telephone interviews were conducted immediately following the close of the season.

Findings:

The telephone survey of dove hunting in the Eastern Management Unit resulted in estimates of 744, 200 hunters, 4, 313, 200 trips and 20, 411, 900 birds killed. Within the state of Louisiana an estimated total of 66, 100 hunters killed 2, 099, 200 doves during 435, 700 trips. The statewide estimates by season segment are listed below.

Estimated From Dove Hunters Residing in Households With a Telephone
1967-68 Hunting Season

Hunting Season Segment	Estimated Hunters	Estimated Trips	Estimated Kill
September 2 - 17	58,000	211,400	1,031,100
October 14 - November 23	33,800	146,700	706,100
December 19 - 31	18,800	77,600	362,000

Prepared by: ______________________________
Larry Soileau
Study Leader

Date: ______________________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: 7 Title: Dove Trapping and Banding

Period Covered: July 1, 1967 through June 30, 1968

Abstract: A total of 4,756 doves was banded in the state from July 1, 1967 through June 30, 1968.

Recommendations: The state's dove trapping and banding program should be operated as part of the overall Eastern Management Unit Dove Research Study. A total of 4,000 doves should be banded during the pre-season period from June through August.

Objective: This job is designed to band a minimum of 4,000 doves in the state in order to measure mortality with differential hunting regulations.

Techniques Used: Trapping was done with funnel-type baited wire box traps which were operated throughout the trapping season and the traps set and run several times each week.

Findings: The results of the trapping and banding program from July 1, 1967 through June 30, 1968 are included in Table II. A total of 4,756 doves was banded in the state.

Prepared by: ____________________
Larry Soileau, Study Leader

Date: ____________________

TABLE II

MOURNING DOVE TRAPPING AND BANDING

July 1, 1967 - June 30, 1968

Banding Location	Number
Belle Chase - Plaquemines Parish	37
Baton Rouge - East Baton Rouge Parish	185
Bellwood - Natchitoches Parish	64
Rockefeller Refuge - Cameron Parish	11
Fairbanks - Ouachita Parish	89
Bodcau W.M.A. - Bossier Parish	85
Camp Claiborne - Rapides Parish	160
DeRidder - Beauregard Parish	547
Newellton - Tensas Parish	177
New Iberia - Iberia Parish	723
Tendal - Madison Parish	1118
Monroe - Ouachita Parish	473
Melville - St. Landry Parish	20
Wisner - Franklin Parish	985
Neame - Vernon Parish	3
Rosepine - Vernon Parish	43
Marksville - Avoyelles Parish	36
Total	4756

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: 8 Title: Dove Wing Collection

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

A total of 568 randomly selected names and addresses of dove hunters was submitted to the Migratory Bird Populations Station for use in a wing collection survey.

Recommendations:

A random list of dove hunters selected from basic resident hunting licenses should be obtained and submitted to the Bureau for use in a wing collection survey.

Objective:

The objective of the job is to measure dove production in the Eastern Management Unit. Information on hunting characteristics and hunting success will also be obtained from this survey.

Techniques Used:

A random list of hunters selected from year old basic resident hunting license receipts was mailed questionnaires requesting whether they had hunted doves during the past season. The list of hunters responding affirmatively was used for the wing survey. The age ratio of the wings submitted by hunters was determined by biologists from all Southeastern states at a wing-bee in Gainesville, Georgia.

Findings:

A total of 568 randomly selected names and addresses of dove hunters was submitted to the Migratory Bird Population Station for use in a wing collection survey. A total of 62 hunters responded submitting 140 envelopes (trips) containing 983 wings.

Prepared by: ______________________

Larry Soileau
Study Leader

Date: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

WORK PLAN V

State of: Louisiana

Project No.: W-29-R-15 Name: Statewide Wildlife Investigations

Job No.: 1 Title: Population Trends by Random Road Counts

Period Covered: July 1, 1955 - June 30, 1967

Abstract: This job was initiated in order to obtain a better understanding of seasonal and annual fluctuations of rabbit numbers in Louisiana. Rabbit random road count data were collected from July 1, 1955 through June 30, 1967. This study did not reveal population trends of rabbits on an annual statewide basis; however, monthly activity trends of rabbits were determined. Rabbits were most active during the winter months. Peak activity was during February. This month was followed in order by March, January, and December. The lowest amount of activity or movements occurred during the months of July, August, September, and October. September was the month of lowest movement and it was followed by October, August and July, respectively.

Objectives: A better understanding of seasonal and annual fluctuations in rabbit numbers was desireable for management planning. This job was designed to determine population or activity trends of rabbits throughout the state.

Techniques Used: This was a year round job which was performed while conducting routine duties in the various districts. The work was assigned to all biologists and other designated personnel of the Pittman-Robertson section of the Fish and Game Division. This included district supervisors, district biologists, project leaders, study leaders, and biological aides. Method used to obtain the data was as follows: When traveling to perform routine duties, the driver of the vehicle recorded the number of dead and alive rabbits observed. The speedometer reading was recorded at the beginning and completion of each trip. This information was kept only during daylight hours, and by day, month, and year. Random road count data were mailed to the study leader at the end of each month.

Findings: Tables I through XII presents the statewide random road count on a monthly and annual basis. Table XIII shows statewide random road count totals presented on a yearly basis from 1955-56 through 1966-67.

Rabbit random road count data were collected from July 1, 1955 through June 30, 1967. Thus, information from twelve years of study is included in this report.

The lowest number of miles traveled was during the first year of study; whereas the largest number of miles traveled in any twelve month period was in 1963-64 (Table XIII). With the exception of a slight decline in the year of 1957-58, there was an annual increase in the number of miles traveled from the outset of the study through the 1963-64 period. During the last three years statewide mileage figures declined considerably according to Table XIII.

Population trends or indexes were not discernible from this study on a statewide basis from year to year.

According to Table XIII the overall average number of rabbits observed per one hundred miles of travel varied from 1.20 during the first year of study to 0.45 in 1965-66. This number consistently declined from the beginning to the completion of the study.

Monthly activity trends of rabbits in Louisiana could be detected from this study (Tables I-XII).

Rabbits were most active during the winter months in Louisiana. On six of the twelve years the average number of rabbits observed for each one hundred miles of travel was highest during the month of February. This indicates peak activity or movement. On two other years the second highest amount of activity occurred in February, and the third

highest activity trends or movements were recorded on one occasion during this month. The month of March was the second most active period of rabbit movements. Peak activity was recorded in March on one of the 12 month periods. The second highest amount of activity was observed during this month on five periods of study, and on three occasions the third most active month was March. Random road counts indicated that January was the third highest activity month. It was the most active time of movement twice, and on four other years the second most active month of movements was January. According to the random road count data December was the fourth highest month of rabbit movements.

Peak activity or movements were recorded during other months over the twelve year period of study, but the frequency of occurrence was much less than that for the four month period of December, January, February, and March. Random road counts for each one hundred miles traveled were highest once in November and on one other twelve month period this was the second most active month of rabbit movements. June was the most active month on one occasion, and the third highest activity period was in June during one year of study. On three different years April was the third highest activity month and August was the third highest activity month on one occasion.

Random road count data collected over a twelve year period between July 1, 1955 and June 30, 1967 showed that the least or lowest amount of rabbit activity or movement occurred during the months of August, September, and October of each year. According to Tables I - XII September was the month in which the least amount of rabbit movement occurred. Of the twelve years this month had the lowest activity period on five occasions. In addition it had the second lowest random road count figure three times, and once this month was third in least amount of activity. Results indicated that October showed the second lowest rabbit movement activity over the twelve years. It was lowest in activity of rabbits twice, second lowest once, and on seven of the twelve years October showed the third lowest period of rabbit activity. Over the twelve years of study August was the month that showed the third lowest amount of rabbit movements. Figures for August were lowest three times, second lowest four times, and third lowest on one occasion. July followed with three periods of low activity.

In summary, rabbit random road count data were collected in Louisiana from July 1, 1955 through June 30,

1967. This study did not provide information that indicated population trends of rabbits in Louisiana on an annual statewide basis. However, monthly activity trends of rabbits in the state were in evidence from this twelve year study. Rabbits were most active during the winter months. Results indicated that February was the month in which rabbits were most active. This was followed in order by March, January and December. The lowest amount of rabbit activity occurred during the months of July, August, September, and October. September was the month in which the least amount of rabbit movements occurred. The second, third and fourth lowest amount of rabbit movements occurred in October, August and July, respectively.

Prepared by: Jack O. Collins
Jack O. Collins
Study Leader

Approved by: ____________________
Larry Soileau
Project Leader

Date: ____________________

TABLE I

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE
July 1, 1955 - June 30, 1956

Month	Miles Traveled No.	Rabbits Recorded Dead	 Alive	 Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1955	5,693	8	7	15	.26
August	8,465	18	11	29	.34
September	9,454	31	17	48	.51
October	4,684	7	3	10	.21
November	3,888	21	1	22	.57
December	7,237	77	12	89	1.23
January, 1956	9,143	146	9	155	1.70
February	5,270	366	26	392	7.44
March	17,447	228	8	236	1.35
April	17,824	154	21	175	.98
May	9,884	48	24	72	.73
June	9,269	30	31	61	0.66
TOTAL	108,258	1,134	170	1,304	

OVERALL AVERAGE - - - - - - 1.20

TABLE II

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE
July 1, 1956 - June 30, 1957

Month	Miles Traveled No.	Rabbits Recorded Dead	 Alive	 Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1956	11,460	24	33	57	.50
August	11,787	78	80	158	1.34
September	8,417	47	12	59	.70
October	7,546	78	1	79	1.05
November	8,030	80	3	83	1.03
December	10,115	129	5	134	1.32
January, 1957	11,763	155	2	157	1.33
February	11,473	232	4	236	2.06
March	16,081	141	8	149	.93
April	12,908	70	16	86	.67
May	16,491	122	27	149	.90
June	13,780	82	44	126	.91
TOTALS	139,851	1,238	235	1,473	

OVERALL AVERAGE - - - - - 1.05

TABLE III

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
July 1, 1957 - June 30, 1958

Month	Miles Traveled No.	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1957	14, 507	72	60	132	.91
August	10, 750	33	18	51	.47
September	13, 240	42	7	49	.37
October	14, 690	68	15	83	.57
November	5, 095	44	4	48	.94
December	7, 189	94	5	99	1.38
January, 1958	10, 286	92	1	93	.90
February	11, 515	132	11	143	1.24
March	14, 035	180	5	185	1.32
April	14, 597	111	7	118	.81
May	9, 540	66	19	85	.89
June	11, 170	52	49	101	.90
TOTAL	136, 614	986	201	1187	

OVERALL AVERAGE - - - - - 0.87

TABLE IV

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
July 1, 1958 - June 30, 1959

Month	Miles Traveled No.	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1957	11, 626	38	32	70	0.60
August	9, 437	38	35	73	0.77
September	10, 180	45	33	78	0.77
October	8, 737	19	4	23	0.26
November	4, 576	45	3	48	1.05
December	5, 829	43	4	47	0.81
January, 1958	8, 293	66	1	67	0.81
February	13, 162	84	3	87	0.66
March	18, 539	145	2	147	0.79
April	21, 634	124	24	148	0.68
May	19, 010	59	53	112	0.59
June	15, 381	54	65	119	0.77
TOTALS	146, 404	760	259	1,019	

OVERALL AVERAGE - - - - - - 0.70

TABLE V

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE
July 1, 1959 - June 30, 1960

	Miles Traveled	Rabbits Recorded			No. Rabbits Recorded
Month	No.	Dead	Alive	Total	Per 100 Miles of Travel
July, 1959	21,449	54	80	134	.62
August	19,775	58	21	79	.40
September	22,109	66	24	90	.41
October	15,476	64	8	72	.47
November	11,569	58	7	65	.56
December	9,007	67	9	76	.84
January, 1960	17,483	150	7	157	.90
February	18,780	197	6	203	1.08
March	18,131	155	26	181	1.00
April	15,743	135	13	148	.94
May	18,741	77	29	106	.57
June	Data Not Available				
TOTAL	188,263	1,081	230	1,311	

OVERALL AVERAGE - - - - - - 0.70

TABLE VI

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE
July 1, 1960 - June 30, 1961

	Miles Traveled	Rabbits Recorded			No. Rabbits Recorded
Month	No.	Dead	Alive	Total	Per 100 Miles of Travel
July, 1960	14,040	37	19	56	0.40
August	20,394	61	127	188	0.92
September	21,448	78	22	100	0.47
October	13,411	54	10	64	0.48
November	17,566	127	10	137	0.78
December	9,299	51	8	59	0.63
January, 1961	12,046	98	6	104	0.86
February	16,341	158	3	161	0.99
March	17,093	155	7	162	0.95
April	20,936	100	17	117	0.56
May	18,727	87	27	114	0.61
June	12,946	37	39	76	0.59
TOTAL	194,247	1,043	295	1,338	

OVERALL AVERAGE - - - - - - - 0.69

TABLE VII

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE
July 1, 1961 - June 30, 1962

Month	Miles Traveled No.	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1961	15,128	31	53	84	0.56
August	20,115	42	21	63	0.31
September	13,488	24	10	34	0.25
October	18,913	52	9	61	0.32
November	14,063	85	3	88	0.63
December	8,960	58	1	59	0.66
January, 1962	13,924	94	7	101	0.73
February	18,796	215	9	224	1.19
March	21,541	216	23	239	1.11
April	24,920	128	40	168	0.67
May	22,036	53	46	99	0.45
June	20,449	58	119	177	0.87
TOTALS	212,333	1,056	341	1,397	

OVERALL AVERAGE - - - - - - - - - 0.66

TABLE VIII

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE
July 1, 1962 - June 30, 1963

Month	Miles Traveled No.	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1962	20,980	45	60	105	0.50
August	16,902	24	37	61	0.36
September	15,556	44	22	66	0.42
October	22,859	129	17	146	0.64
November	17,860	146	3	149	0.83
December	10,799	40	12	52	0.48
January, 1963	17,915	98	2	100	0.56
February	21,802	137	7	144	0.66
March	19,973	132	24	156	0.78
April	25,621	110	22	132	0.52
May	20,971	81	83	164	0.78
June	19,162	78	90	168	0.88
TOTALS	230,400	1,064	379	1,443	

OVERALL AVERAGE - - - - - - - - 0.63

TABLE IX

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
July 1, 1963 - June 30, 1964

Month	Miles Traveled No.	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Trave
July, 1963	19,210	50	68	118	0.61
August	23,445	66	51	117	0.50
September	22,850	37	10	47	0.21
October	25,241	81	30	111	0.44
November	18,150	49	1	50	0.28
December	10,917	34	5	39	0.36
January, 1964	20,288	146	9	155	0.76
February	15,069	108	1	109	0.72
March	24,012	161	12	173	0.72
April	27,155	131	50	181	0.67
May	21,596	82	71	153	0.71
June	18,381	44	68	112	0.61
TOTALS	246,314	989	376	1365	

VERALL AVERAGE - - - - - - 0.55

TABLE X

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
July 1, 1964 - June 30, 1965

Month	Miles Traveled No.	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1964	25,387	37	56	93	0.37
August	17,744	21	16	37	0.21
September	19,983	19	3	22	0.11
October	15,065	40	7	47	0.31
November	8.725	47	2	49	0.56
December	13,781	104	1	105	0.76
January, 1965	24,563	213	0	213	0.87
February	17,870	149	3	152	0.85
March	16,488	67	7	74	0.45
April	15,670	63	20	83	0.53
May	12,884	47	43	90	0.70
June	17,708	43	59	102	0.58
TOTALS	205,868	850	217	1,067	

OVERALL AVERAGE - - - - - - - 0.52

TABLE XI

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
July 1, 1965 - June 30, 1966

Month	Miles Traveled No.	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1965	14,833	18	45	63	0.42
August	7,166	10	4	14	0.20
September	15,951	72	10	82	0.51
October	14,047	42	4	46	0.33
November	9,585	37	2	39	0.41
December	8,770	42	2	44	0.50
January, 1966	10,120	36	2	38	0.38
February	14,071	86	4	90	0.64
March	18,674	107	9	116	0.62
April	12,363	48	21	69	0.56
May	16,483	51	23	74	0.45
June	21,814	30	40	70	0.32
TOTALS	163,877	579	166	745	

OVERALL AVERAGE - - - - - 0.45

TABLE XII

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
July 1, 1966 - June 30, 1967

Month	Miles Traveled No.	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1966	15,775	33	38	71	0.45
August	17,434	23	20	43	0.25
September	15,349	13	8	21	0.14
October	11,990	39	1	40	0.33
November	11,638	58	1	59	0.51
December	10,872	67	2	69	0.63
January, 1967	13,101	92	5	97	0.74
February	13,234	71	5	76	0.57
March	15,897	116	3	119	0.75
April	14,345	96	8	104	0.72
May	15,960	49	45	94	0.59
June	17,010	29	85	114	0.67
TOTALS	172,605	686	221	907	

OVERALL AVERAGE - - - - - 0.53

TABLE XIII

ANNUAL RABBIT RANDOM ROAD COUNTS - STATEWIDE
TOTALS
Presented Yearly From 1955-56 1966-67

Year	Miles Traveled No.	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	Overall Average Number of Rabbits Recorded/100 Mi. Trav
7/1/55 -6/30/56	108,258	1,134	170	1,304	1.20
7/1/56 - 6/30/57	139,851	1,238	235	1,473	1.05
7/1/57 -6/30/58	136,614	986	201	1,187	0.87
7/1/58 -6/30/59	146,404	760	259	1,019	0.70
7/1/59 -5/31/60	188,263	1,081	230	1,311	0.70
7/1/60 -6/30/61	194,247	1,043	295	1,338	0.69
7/1/61 -6/30/63	212,333	1,056	341	1,397	0.66
7/1/62 -6/30/63	230,400	1,064	379	1,443	0.63
7/1/63 -6/30/64	246,314	989	376	1,365	0.55
7/1/64 -6/30/65	205,868	850	217	1,067	0.52
7/1/65 -6/30/66	163,877	579	166	745	0.45
7/1/66 -6/30/67	172,605	686	221	907	0.53

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

WORK PLAN V

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: 5 Title: Rabbit Study - Habitat Manipulations

Period Covered: July 1, 1967 - June 30, 1968

Abstract: Twelve two acre plots located in river delta bottomland hardwoods were marked off on the Saline Wildlife Management Area, LaSalle and Catahoula Parishes, Louisiana. Objective is to study relationships between hardwood timber thinnings and swamp rabbit populations. Rabbit proof fences were constructed around each plot after different degrees of timber thinning were employed. Four plots were used as controls; fifty percent of timber was cut on four, and twenty-five percent was cut and removed from four of the plots. Random selection of plots were employed.

After fences and logging were completed, two pairs of adult swamp rabbits were placed in each pen. All rabbits will be counted and removed at the end of each breeding season. Population counts are not available for this report.

Recommendations: This job should be continued in its present form since timber thinning effects on habitat cannot be determined before several years of study are complete.

Objectives: To determine influence of hardwood thinnings on size of fall swamp rabbit (*Sylvilagus aquaticus*) populations.

Techniques Used: Twenty-four acres of bottomland hardwoods were enclosed with a five foot high rabbit proof wire fence. This area was surveyed and divided into twelve two acre blocks. (See Diagram I). For partitions, five foot high rabbit proof wire was used. In order to prevent deer from entering the study area a medium gauge hog and cattle proof wire was nailed on the outside of the rabbit proof wire around the perimeter of the study area. In addition, the outside fence was extended to a height of eight feet by using strands of barbed wire placed six inches apart.

To prevent burrowing under the fence, long life wire was used to extend six inches underground beneath all fences.

Habitat manipulations were completed before fence construction was started. This was accomplished in the following manner. A 100 percent basal area survey was made of all trees 1" dbh and up on all twelve plots. Treatments consisted of different degrees of timber thinning. There were two treatments in four replications and four control plots. Plots were randomly selected for the thinning treatments. On each of four plots 50 percent of the area was cut

and removed, and 25 percent was removed from four other plots. Selection of stems that were cut was based on the Timber Stand Improvement method used in hardwood management. For information on timber densities and composition before cutting refer to Project No. W-29R-14, Work Plan V, Job No. 5.

After fence construction was complete, all native swamp rabbits were removed from plots by means of night and day hunting with and without dogs.

In February 1968 two pairs of adult swamp rabbits were placed in each pen. Rabbits were individually weighed, and both ears of each animal were tatooed for permanent identification. (See Table I). All rabbits were procured in East Baton Rouge Parish near Baton Rouge, Louisiana between October 10, 1967 and March 1, 1968. A total of seventy-six swamp rabbits was captured. Thirty-six were males, and forty were females. Of these, twenty-five died of shock and other causes prior to stocking. Rabbits were captured by means of wire traps, and Delicious apples were used as bait.

Findings:

When the major breeding season is over in September 1968, all rabbits will be removed and counted. After this procedure is complete all pens will be restocked for further study.

Weekly inspection of all fences and plots is made by the study leader. Fences are in good condition. The number of rabbits removed from each plot will be reported in the ensueing completion report.

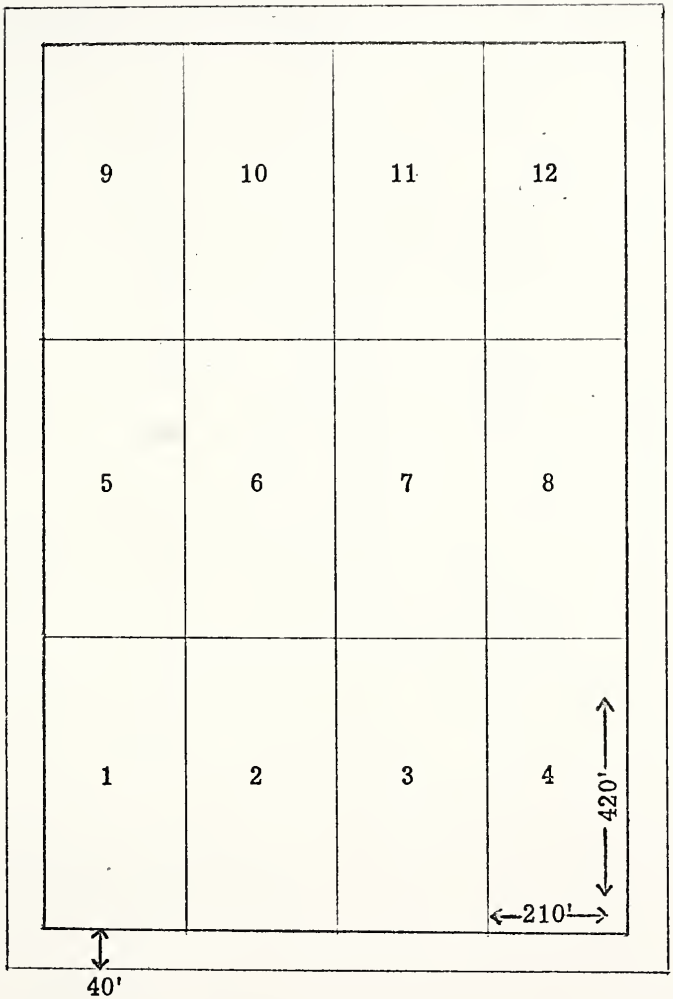
Prepared by: Jack O. Collins
Jack O. Collins
Rabbit Study Leader

Approved by: ____________________
Larry Soileau
Project Leader

Date: ____________________

Diagram I

Saline Swamp Rabbit Study
Plot Layout



Treatments (Random Selection) (Basal Area)

Control - plots #12, 10, 7, 1.
50% Cut - plots #11, 8, 4, 3.
25% Cut - plots #2, 6, 5, 9.

TABLE I

DATA ON SWAMP RABBITS RELEASED IN PENS
ON SALINE WILDLIFE MANAGEMENT AREA IN
MID-FEBRUARY*, 1968

	MALES		FEMALES	
Pen No.	Tatoo No.	(In Ounces) Weight	Tatoo No.	(In Ounces) Weight
1	A-34	51	A-2	69
	A-38	61	B-5	62
2	A-20	75	B-23	61
	A-37	53	B-39	53
3	A-3	65	B-30	66
	A-42	60	B-40	61
4	A-23	66	B-13	65
	A-24	64	B-14	62
5	A-11	70	B-8	51
	A-30	63	B-42	63
6	A-15	80	B-4	66
	A-41	45	B-10	57
7	A-35	56	B-24	61
	A-46	73	B-43	58
8	A-4	72	B-3	71
	A-39	66	B-38	64
9	A-5	66	B-2	58
	A-18	54	B-37	54
10	A-6	76	B-20	58
	A-40	64	B-41	56
11	A-9	62	B-1	67
	A-43	55	B-34	55
12	A-7	69	B-6	70
	A-8	76	B-17	70

*All rabbits released in pens February 16, 1968 except B-43, and A-46, February 24, 1968 and A-41, March 1, 1968.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN X

BEAR INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: I-1 Title: Bear Inventory

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Notes on bear sign or bear sighted were kept by Biologist when making deer range surveys. Of bear that had been brought into the State since 1964 and released, 33 were recaptured and returned to the release site and 29 have been verified as being killed.

Recommendations: It is recommended this job be discontinued. This is the completion report for this job.

Objectives: The objectives of this job are: (1) to compile a record of locations and number of bear for future management and (2) to keep records and maintain surveilance of bear released in Louisiana.

Techniques Used: The surveys were made in conjunction with the deer range surveys and using the same techniques as described under Work Plan 1, Job 6. At stops made on the deer range survey, notes were kept as to bear sighted or sign such as tracks, droppings, clawings or scratchings on logs or trees. Local people were to be contacted to get any additional information needed. A narrative report was to be prepared on each area surveyed or bear sign noted was to be entered at the end of deer range survey reports.

A bear release program with animals trapped in Minnesota has been conducted in Louisiana during the past four summers. This operation was financed by state funds. Each bear was tagged in each ear with a monel tag.

In the summer of 1964, 28 bear were released in the Atchafalaya River Swamp, in Pointe Coupee Parish.

In 1965, the releases consisted of 55 animals. Forty-six of these were released in the Atchafalaya River Swamp where releases were made in 1964. Nine bear were released in Madison Parish.

The releases of 1966 were made up of 55 bear. Twenty-four of these were released in Madison and Tensas Parishes and the remainder in the Atchafalaya River Swamp in the area of previous releases.

In 1967, twenty-six bear were released in the Atchafalaya River Swamp in Pointe Coupee Parish.

Numerous reports of bear being seen or damage complaints throughout the state were investigated. Reports of bear being killed by automobiles or shot were investigated. Some bear showing up around peoples houses, especially in town, were caught and returned to the original release site. Most of these bear were caught by the use of the Cap-chur gun and sucostrin.

Findings:

Biologist making deer range surveys did observe for bear sign.

Of the bear released in 1964, 14 animals have been verified as being killed. Of those killed ten were shot, three were hit by automobiles and one died of an overdose of sucostrin. Four of these were killed in Mississippi. One of these was approximately 260 air miles from the release point. Twelve of the bear released during this year were caught and taken back to the release point.

Of the bear released in 1965, nine have been verified as being killed. Three were captured and taken back to the release point.

Of the bear released in 1966, six have been verified as being killed. Another bear not tagged was also shot and killed. Eighteen were captured and returned to the release point.

One of the bear released in 1966, and included in those killed, was shot near Canton, Mississippi, in February 1967. This bear came out of a hollow log

and a quail hunter shot her. This female had three cubs in the log. This animal was released in Madison Parish on July 26, 1966.

Of the bear released in 1967, two have been verified as being killed. During this segment 9 were captured and returned to the release site.

Numerous complaints or reports of presence of bear were investigated.

Prepared by:__________________ Approved by:__________________
Louis E. Brunett Larry Soileau
Deer Study Leader Project Leader

Date:__________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: XI-1 Title: Gum Cove Francolin

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

The black francolin appears to be well established on the Gum Cove area and within a seven mile radius of the release site. Several broods of young were observed this year and reports indicate that francolins are frequently observed and heard calling.

Two call-count routes were run this year. The first route yielded 1.25 calling males per stop on the 12 stop route. In 1967, .58 calling birds per stop was heard. The other route consisted of 51 stops. Four calling francolins were heard this year as compared to only one in 1967.

Recommendations: Continue running the established call-count routes and also make frequent visits and inquiry in the surrounding area. The data collected will be used to keep a running account of the population level and spread of the black francolin in southwestern Louisiana.

Objective: To provide an accurate chronicle on the status of the black francolin in Cameron and Calcasieu parishes, Louisiana.

Techniques Used: Much of the information came from direct observations made by the study leader, other project personnel and from reliable individuals traveling or working in the release vicinity.

Call-count routes were run in accordance with the established procedures. These procedures include driving the selected routes during late April or early May between 6:00 A.M. and 10:00 A.M., stopping at one mile intervals, and listening for calling male francolins.

The number of calling male francolins as well as the number of calls heard was recorded. In addition, all francolins observed were noted. On one call-count route, the listening time was changed from ten minutes to five minutes. The three-minute listening time on the other route remained unchanged. Weather information was also recorded while these counts are conducted.

Findings:

Observations - Numerous visits to the release vicinity were made by the study leader and by district personnel. Black francolins were heard calling or observed on most visits to the area between March and September.

Several broods were reportedly observed in the release area vicinity. One brood was reported in September, 1967, three or four reported in June, 1968. All reports from reliable people working in the area indicate that more birds are presently being observed and heard than ever before. Calling males may be heard almost any day between March and September within an eight to ten mile radius of the release site.

Census - The twelve-stop call-count route in the release area was run on April 30, 1968. This route was run in 1967 when an average of .58 calling males per stop was heard. This year's count yielded 1.25 calling males per stop. It was felt that the higher count in 1968 was not indicative of that great an increase from 1967 but only the result of better listening conditions while the route was being run. In 1967, a strong south wind hindered the observer in hearing francolins as well as the possibility that this strong wind kept birds from calling. Nine francolins were observed on this twelve mile route in 1967 as compared to thirteen in 1968.

The other call-count route is located north of the release area and consists of fifty-one stops. This route was run on May 16 and 17, 1968.

In 1967 only one calling francolin was heard on this route. This year's count yielded four calling francolins. These four calling males were located within a two and one-half mile portion of the call-count route and about seven miles from the original release site. In 1967 the only bird heard calling along this route was in this same general area. A good possibility is that a small breeding population is becoming established in this particular area.

Prepared by: Raymond J. Palermo
Raymond J. Palermo
Exotic Bird Study Leader

Approved by: ______________________
Lawrence D. Soileau
Project Leader

DATE: ______________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: X1-3 Title: Red Junglefowl Releases

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Red junglefowl were released on four test areas from 1964 through 1966. Birds dispersed widely shortly after release - ranging up to fifteen miles. All releases exhibited the same general pattern of behavior after release which was dispersion and seeking out and associating with domestic chickens. Only a few small broods were observed on two of the release areas and the existing populations on all areas dwindled to only an occasional bird being observed. It is believed that the red junglefowl is not suited to the habitat tested.

Red junglefowl were released on Avery Island, La. in late 1967 and appear to be holding on. Birds did not disperse widely due to the "island effect." Three active nests were located and five or six broods of young were observed. It is too early to speculate on the final outcome of this release.

Recommendations: The Avery Island junglefowl release should be closely followed. Spring and fall population estimates should be made on the island in order to aid in the proper evaluation of this release.

Objective:

1. To consolidate and evaluate information collected on areas where junglefowl were previously released.
2. To consolidate and evaluate information on the survival, reproduction and dispersal of junglefowl released on Avery Island, La.

Techniques Used:

1. The information obtained pertaining to these junglefowl releases came from direct observations by the study leader, other project personnel, and

from interested reliable individuals in the release vicinity. Beginning in 1964, pen-reared red junglefowl (Gallus gallus murghi) were released on four areas in Louisiana. These were the Idlewild Research Area, St. Helena Area, the Thistlethwaite and West Bay Wildlife Management Areas. Permanent conditioning pens approximately 30 feet by 70 feet were constructed at the selected release sites. Birds eight to twelve weeks old were placed in these pens and released in the fall and early spring. The total number of birds placed on each area follows:

YEAR	IDLEWILD	ST. HELENA	THISTLETHWAITE	WEST BAY
1964	50	30	61	76
1965	41	50	61	64
1966				168
TOTAL	91	80	122	308

As releases were made, supplementary feed was scattered in the immediate release vicinity in efforts to hold birds near the release site. In 1965, a Louisiana State University graduate student, James W. Turk, made an intensive study of released red junglefowl on the Idlewild and St. Helena areas. His work is in the form of a master's thesis and is entitled, "An Evaluation of Red Jungle Fowl Releases in Southern Louisiana".

2. Avery Island, a 2,000 acre island, is located in extreme Southcentral Louisiana and is virtually surrounded by natural marshes. It is a unique place in that the elevation rises to about 150 feet as compared to the low flat marshes which surround the island. Under the surface of the island lies a great dome of salt which is commercially mined. Terrain of the island is rolling hills and valleys. About thirty percent of the island is cleared land and consists of pastures and cropland. The remaining seventy percent is native woodlands. This wooded acreage is broken up in large and small acreages with meandering openings between them. Vegetation in the woodland is dense and luxuriant.

   The information obtained on the Avery Island junglefowl release came from direct observations made by the study leader and from reliable people living on Avery Island. In July, 1967, three portable conditioning pens, nine feet by twelve feet, were erected at selected release sites on Avery

Island. The pens were constructed of two inch poultry wire with an electric wire placed near the ground to discourage predators. Feed and water was available at all times.

Immature pen-reared red junglefowl were placed in these pens and conditioned for two or three weeks, then released. Between July 1 and November 20, 1967, four hundred and two birds were put in these pens, resulting in two hundred ninety-four being released. The last group of birds placed in the pens consisted of fourteen adult breeders. As birds were released, feed was scattered near the conditioning pens and in preferred coverts.

Findings:

1. Junglefowl on the four areas where releases were made 1964 through 1966 remained near the initial release site for about two months after release. After that a continued dispersal of birds was evidenced with some birds venturing rather long distances. Crowing was frequently heard during the first two months after releases were made in the spring. Dispersal the first year after releases varied from three to nine miles and up to fifteen miles the second year. Junglefowl were frequently found with domestic chickens near farmhouses. No junglefowl nests were located on any of these release areas, however, a total of twelve broods was observed on two of the release areas in 1965 but none have been seen since that year.

   Released junglefowl exhibited the same general habits on all four release areas. They were seen quite frequently in the spring until early summer. Crowing males were also heard frequently during this period. Dispersal gradually spread birds out to at least fifteen miles and they tended to seek out and associate with domestic chickens located in the release vicinity.

   Only a few small broods were in evidence on the release areas and populations continued to dwindle. At the present time only an occasional bird is observed on or near one of the release areas. It is believed that the red junglefowl is not suited to the habitat of the four areas tested from 1964 to 1968.

2. Released junglefowl on Avery Island were frequently observed throughout the winter when one flock of

approximately thirty-five was seen regularly. Another flock of about twenty-five was observed in another location about a mile from the first. Generally, the junglefowl observed were always near heavy cover where they darted to. They seemed to prefer dense bamboo clumps and woody cover with a rather dense understory,

By the middle of February, 1968, junglefowl cocks were frequently heard crowing on the island. During March and early April the flocks began breaking up into small groups. These groups consisted of one or two cocks with two to four hens.

One nest was located in early May, 1968. This nest contained five eggs and was very well concealed under a yucca plant in grass about four inches high. Toward the last few days of incubation the nest was broken up by an unknown noctural predator, presumably a skunk.

The same day nest number one was broken up, another nest was found. This nest contained four eggs and was about three hundred yards from nest number one. Unfortunately, nest number two was also broken up a few days after it was found. Again, the predator was presumed to be a skunk. Nest number three, containing four eggs, was found in middle June. It too was broken up by an unknown predator. During the spring of 1968, five or six broods were reported. One brood consisting of four was about six weeks old when observed The other broods observed contained less than four chicks each

It appeared that junglefowl survived the winter well on Avery Island and did not disperse from the release area as we experienced with the four other junglefowl releases. This was attributed to the release area being an island surrounded mostly by marshland. They exhibited a determined effort to nest and rear young as evidenced by personnel locating three active nests and observing five or six broods. It is too early to speculate on the final outcome of this release but it will be closely followed in order to fully evaluate the red junglefowl's chances in Louisiana.

Prepared by: Raymond J. Palermo Approved by: ____________________
Raymond J. Palermo
Exotic Bird Study Leader

Lawrence D. Soileau
Project Leader

DATE: ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-15 Name: Statewide Wildlife Investigations

Job No.: XI-4 Title: Other Releases

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Pen reared black francolins were released on two areas in 1967-68. They dispersed shortly after release on both areas and only a few can be accounted for. No nests or broods have been found. Birds released the previous years appear to vanish when winter arrives - not to be seen or heard the following spring. It appears that the black francolin is not suited to habitat types such as the Fort Polk release area and the Cloutierville area. Winter cover seems to be lacking on the Cloutierville area.

Pen reared Japanese green pheasants were released on one area in 1967-68. Disease again plaqued this release resulting in only a few birds actually being released. Two or three broods were reported this year. Dispersal was generally three to five miles with two extremes of about fifteen miles.

Recommendations: Continue the black francolin release at Cloutierville one more year (1968-69). Continue observations on the Bodcau, Fort Polk and Cloutierville areas for three breeding seasons after the final release. Follow the progress of the Japanese green pheasant release for two more years.

Objectives: To consolidate and evaluate information on the survival, reproduction, dispersal, and habitat preferences of released pen-reared black francolins, bamboo partridges, and Japanese green pheasants.

Techniques Used: Black francolins were released at two locations during this year. These were the Fort Polk Wildlife Management Area and the Cloutierville release area. Japanese green pheasants were released on the Fenton release area. Information on the progress of each release was collected by the study leader, interested people working on the release areas, wildlife management area supervisors, and district personnel. This consisted of sight records, calling males heard, and a general evaluation of the release.

Black Francolin (Fort Polk W.M.A.) - Two hundred sixty-six pen-reared black francolins were placed in the existing conditioning pen in late summer, 1967. Aluminum leg bands were placed on all birds. All were overwintered in this pen and releases made in early March, 1968. Supplemental feed (henscratch) was made available around the release pen vicinity after releases were made. Strips of millet and wheat were planted near the release pen in efforts to hold the birds in the immediate release vicinity. This year's release was the third consecutive and was the final in this habitat type.

Black Francolin (Cloutierville area) - Two hundred seventy-four pen-reared francolins were placed on the Cloutierville area for release. The existing conditioning pen was used and a new pen, similar in design, was constructed and used to hold birds throughout the winter. No birds were released in the fall as in 1966. This was the second consecutive year of francolin releases on this area. All birds placed in conditioning pens were fitted with conventional aluminum leg bands.

Black Francolin (Bodcau W.M.A.) - Black francolins were released on this area in 1965-66 and 1966-67. None were released the past year but the progress of this release was followed through census work and general observations.

Japanese Green Pheasant (Fenton area) - Two hundred seventy-two pen reared Japanese green pheasants were placed in the existing conditioning pen at the Fenton release area in the early fall of 1967. Twenty-six of these were adult breeders; the remainder immature birds. Releases were made in early spring, 1968. This was the fourth consecutive year of green pheasant releases at the Fenton area and was the final.

Bamboo Partridge (DeRidder Airport) - Releases of bamboo partridges were made on this area in 1965 and 1966. None were released during the past year. The progress of initially released birds has been followed since their release and the results will be presented.

Findings:

Black Francolin (Fort Polk W.M.A.)

Releases were made in middle March, 1968. Francolins immediately dispersed over the area and as of June 30, 1968 very few birds could be accounted for. Several francolins have been observed on the south Fort Polk military installation where habitat is probably more favorable. Strips of wheat and browntop millet were available at the release area and some evidence of francolin use was noted, however very few 1967 released birds were believed to have survived the winter. One 1967 released female was observed near the conditioning pen in late February, 1968. No nests or broods were observed this year. This was the third and final consecutive annual release of black francolins on the Fort Polk area and up to the present time they have shown little or no promise of adapting to that particular type habitat.

Black Francolin (Cloutierville Area) - Black francolins were placed in the two conditioning pens on the release area in the fall of 1967. No releases were made until early spring. Birds overwintered well in one pen but a die-off was experienced in the other. This particular pen is located in a relatively level area and in late December, 1967 and early January, 1968, a two week siege of cold, rainy weather hovered over Central Louisiana producing standing water in this pen. Some freezing rain and snow also fell during this period. Approximately fifty francolins died during this inclimate weather - the cause of death as diagnosed by the Louisiana State University Research Unit was exposure. There was no evidence of disease or serious parasitism. It appeared that birds became wet to the skin on their undersides and went off feed. This led to a weakened condition and finally they succumbed. Birds in the other conditioning pen did not exhibit any undue discomfort during this period, however, standing water was not present in this pen.

A substantial snowfall occurred on February 23, 1968, depositing about six inches. Francolins in the pens experienced very little difficulty and only one bird was found dead three days later.

Birds were released on March 18, 1968 when spring appeared to have arrived. This was short lived as another snowfall occurred on March 22. Accumulation was about three inches. Cold, wet weather was the rule all through April and May, 1968. Birds dispersed and very few observations have been made since releases were made. No nests or broods have been observed this year.

One more release is scheduled for this area, after which a final evaluation will be made. Birds appeared to do well the first summer after release, then disappeared in winter and not observed the following spring. At the present time it is felt that sufficient winter cover is lacking over most of this particular type habitat being tested.

Black Francolin (Bodcau W.M.A.) - No francolins were released on this area this year but observations were carried out directed toward evaluating this release. Calling males were seen and heard frequently last summer and fall until October. No nests or broods were observed. Trips over the area with bird dogs were made in efforts to locate francolins but none could be found throughout the winter. A bird dog field trial was held on the area in early March 1968, and no francolins were observed. One reliable report was received stating that a female francolin was killed by a quail hunter in early February, 1968, about five miles from the release site. It is felt that this type habitat is deficient in some of the winter requirements of black francolins. Whether it is winter cover, feed, or weather conditions, it is not known. In all probability it is a combination of factors above plus others. Presently, the future of released black francolins on the Bodcau W.M.A. is dim and unless there is more evidence of an emerging population, prospects are that this particular type habitat is unsuited for black francolins.

Japanese Green Pheasant (Fenton Area) - Disease plagued the conditioning pen on this area as it has in the past even though preventive measures were taken before birds were put in the pen last fall. Although 272 pheasants were placed in the pen, only a portion of these were actually released. Crowing cocks were heard in the release vicinity in early spring and two or three broods were reported. This was the first year broods were reported. Dispersal extended generally from three to five miles with two reported sightings about fifteen

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miles from the release site. This was the final release scheduled for this area and at the present time the outlook is bleak. Observations on this area will continue two more years.

Bamboo Partridge (DeRidder Airport) - These findings will serve as a completion report on the bamboo partridges released in Louisiana.

A total of 132 bamboo partridges was released at the DeRidder release area during 1965-66 and 1966-67. Releases were made in early spring both years after birds were conditioned in a permanent conditioned pen constructed on the area. Supplementary feed was made available in the release vicinity.

Released birds were observed a number of times near the conditioning pen for a two month period after release. Some calling was also heard in the release vicinity. No evidence of nesting has been found and presently no evidence of surviving birds can be found. Immediately after releases were made, quite a lot of predation was in evidence near the conditioning pen. High initial mortality due to predators, lack of required foods, possibly unsuitable cover and weather conditions are some of the factors believed responsible for the failure of this exotic bird release. Due to the obvious failure of these releases, work with the bamboo partridge has terminated.

Prepared by: Raymond J Palermo
Raymond J. Palermo
Exotic Bird Study Leader

Approved by: ______________________
Lawrence D. Soileau
Project Leader

DATE: ______________________________

Approved by: ______________________________
Lawrence D. Soileau

____
Charles R. Shaw
P-R Coordinator

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Joe L. Herring, Chief
Fish and Game Division

____
Leslie L. Glasgow
Director

STATE: Louisiana

PROJECT: FW-2R-9

PERIOD: July 1, 1967 - June 30, 1968

ANNUAL PROGRESS REPORT

Supervisors:	Dr. Leslie L. Glasgow, Director Louisiana Wild Life and Fisheries Commission
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	Charles R. Shaw, Coordinator (P-R)
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Project Leader:	Roger Hunter, Jr.

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Job No. 2:	Designs and Procedures for Processing Data
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Job No. 5:	Analysis and Reports

State of Louisiana

Project No.: FW-2R-9 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 1 Title: Data Processing

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Data processing was carried out for all programs presented in this report during the segment period.

Recommendations:

1. Consideration is being given to conversion from 90 column to 80 column punch cards for the purpose of up-dating the system. All new Univac equipment has been standardized to 80 column only.
2. It is recommended that this Job be continued in its present form for the following year.

Objectives:

1. To handle necessary administrative functions of processing systems.
2. To perform necessary auditing and coding of field forms preparatory to machine functions.
3. To machine process data as required and/or requested according to prescribed methods.
4. To perform necessary clerical editing of printed machine results.

Techniques Used: Each program and program job require specific procedures dictated by objectives of the work. Basically, the order of procedures follows a sequence pattern:

1. Auditing, coding and arranging source data
2. Machine card processing

   a. Card punching by one operator
   b. Verify punching by another operator
   c. Machine verification and correction of errors.

3. Machine procedures. Includes all basic card sequencing, computations and tabulations and any specific machine processing as required and/or requested.
4. Data editing and summaries. Includes checking sequence and correctness of machine runs and preparing necessary report formats.

Findings: Data processing work was performed on the following programs: The time analysis for each function within these programs is presented at the end of Job 1.

1. Banding

   Project FW-2R responsibility in this program consists of coordination of the Commission banding program with the U.S. Fish and Wildlife Service and with sub-permit holders within the Commission; administration of the program; recording all banding data by the Commission and recording all recovery data concerning Louisiana as supplied by the Bureau of Sport Fisheries and Wildlife; and preparation of reports of these activities as required. (See Job 5 for banding reports.)

2. Deer Kill Survey

   The yearly deer kill survey (for the 1967-68 hunting season) was carried out during the segment. This survey was conducted on a parish basis for the third time which

furnished us with comparative results for the three years. Data processing responsibilities for this mail survey consisted of the following phases:

a. License file handling. Duplicate copies of big game licenses and permits were forwarded to the Project and these were recorded and pre-determined numbers pulled for sampling.

b. A master locator punch card was prepared bearing descriptive identification numbers and the hunter's name and address.

c. Survey mailings. Continuous form questionnaires were prepared by computer from the master cards and mailed in window envelopes for each of three mailings with responses being purged from subsequent mailings.

d. Questionnaire responses. Responses were audited, coded and machine cards prepared for each response, non-deliverable and non-response entry.

e. Summarization of results. At the end of the survey, summary cards for each of the items were punched for obtaining estimates. License and permit results were summarized separately.

f. Estimates. Completed estimates were prepared by computer using an up-dated program for mail survey estimators.

Design and analysis characteristics and estimates from the survey are presented under Job 3 of this report.

3. Dove Harvest Survey

This program is coordinated through Project FW-2R and jointly funded by Project W-29R and with supervision by the Dove Study Leader. Responsibilities in data processing for Project FW-2R include:

a. Preparation of the sample. Samples from basic resident hunting licenses were selected from the file and punched into master locator cards with identification number, name and address.

b. Survey mailings. Continuous form questionnaires were prepared by computer from the master cards and mailed in window envelopes for each of three mailings with responses being purged from subsequent mailings.

c. Questionnaire responses. Responses were audited, coded and machine cards were punched for each response, non-deliverable and non-response entry.

d. Summarization of results. At the end of the survey, response information for each of the items was summarized for obtaining estimates.

e. Names and addresses of dove hunters obtained from this survey were furnished to the dove study leader to be used in conjunction with a regional dove telephone survey for the 1968-69 season.

4. Resident Small Game Survey

This program was carried out for the 1967-68 season and was conducted in the same manner as the above described

dove harvest surveys using the basic resident hunting license issue for the frame. This survey included quail, rabbit and squirrel kill results on a state wide basis and will be repeated again for the 1968-69 season to obtain comparative information. (1967-68 survey results are presented in Job No. 5)

5. Creel Census

   Activities of Project FW-2R on this program are of a service nature involving material collected under Louisiana Project F-7R.

   Source documents consisting of fish party totals are submitted for data processing at periodic intervals. Routine handling of these data include auditing of source documents (field collection forms), additional coding where necessary and processing machine cards in a multiple card series. Annually these results are sequenced, computer checked for errors and computations prepared for each body of water. The 1967-68 segment will conclude this program.

6. Fish Population Sampling

   Sampling activities using various fishing gear were processed for Louisiana Project F-8R. Data processing routines were of the same nature as the creel census program described above.

7. Other Programs

   Work on other programs which were primarily of a service

nature included Water Quality Analysis and a dove recovery study from 1949 to 1968. These programs are presently in progress. Computer runs are prepared as required.

Planning has progressed for a waterfowl mail survey for the 1968-69 season to be conducted during the next segment in the same manner as the dove survey using the basic resident hunting license issue for the frame.

Prepared by: Roger Hunter, Jr.

Time analysis (expressed in man days) for programs during FY 1967-68*

Program	Total Time (Man Days)
1. Banding	199
2. Deer Kill Survey	637
3. Dove Harvest Survey	140
4. Small Game Survey	154
5. Creel Census	132
6. Fish Population Sampling	27
7. Water Quality Analysis	22
8. Dove Recovery Study	20
9. Other Programs (Planning)	10
TOTAL	1,341

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*Does not include computer programming or computer running time at other locations.

State of Louisiana

Project No.: FW-2R-9 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 2 Title: Designs and Procedures for Processing Data

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

Conversion and up-dating of programs to Univac computation was accomplished as required during the segment. All programs will be up-dated accordingly as needed through the next segment. Additional equipment is planned for the next segment to facilitate the increased volume of data processing and mail surveys.

Recommendations:

1. It is recommended that this Job be continued for the next segment.

Objectives:

1. To determine the feasibility of using machine processing of data for studies as requested.
2. To determine a suitable processing system, if feasible, to include:
   - a. Field collection forms
   - b. Punch card design
   - c. Wiring unit design
   - d. Computer program
   - e. Flow arrangement for processing
   - f. Instructions of processing
3. To continue development on any previously planned processing system that requires revisions or additions.

Techniques Used:

1. For Feasibility Studies

Planning for programs necessitates detailed studies of objectives, data collection activities and analysis desired.

Each program requires its own techniques although there are generally certain routines acceptable to all program design. The amount of work involved depends upon the complexity of each phase of the program and the continuancy of the program. If a program is considered feasible, the detail programming to include data collection forms, punch card formats and basic processing procedures are developed.

2. For Phase Instructions

   Any continuing program requires specific processing instructions for each job or phase; this includes written programs for computer output. Program up-dating also falls into this category. Each set of instructions is given a Job number and a file is maintained for each program. Program folders are prepared for each job and are maintained for continuing programs.

Findings: Work under this Job was carried out for every program during the report period. Primary considerations were given to conversion of existing programs to the Univac computer for more comprehensive and faster results and to streamlining clerical procedures.

Prepared by: Roger Hunter, Jr.

State of Louisiana

Project No.: FW-2R-9 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 3 Title: Study Designs and Sampling Programs

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Planning and operation were carried out for the Deer Kill, Dove Harvest and Small Game surveys during the segment. Planning was begun on a Waterfowl survey to be conducted for the 1968-69 season.

Recommendations: It is recommended that this Job be continued for the next segment.

Objectives:

1. To aid project and study leaders, at their request, in study designs.
2. To develop, coordinate, and supervise survey and sampling programs as requested.

Techniques Used: Under this section designs and estimators will be discussed for each program:

1. Deer Kill Survey

General. A mail survey was used to estimate deer kill information during the 1967-68 hunting season. Sampling procedure was identical to that used for the previous season to produce estimates of results on state, district and parish levels for management purposes. Procedure and results of the 1967-68 Deer Kill Survey are included in Job No. 5 of this report.

Design and Estimators. The general design and estimators

for the 1967-68 Deer Kill Survey were similar to the previous season.

Parish sampling fractions ran from 5% to 100%. Item of interest totals were calculated on a parish breakdown and these were combined for district and state estimates. The computer program set up for the 1965-66 survey was used to calculate item estimates (T) for each parish and punched card outputs were combined to summarize for district and state totals. Slight modification was required for this program.

2. Dove Harvest Survey

A mail survey was used to determine dove harvest information during the 1967-68 season. This survey was conducted primarily to obtain names and addresses for wing collection packets to be used in conjunction with a regional dove telephone survey and to check the Louisiana results obtained from the regional survey. A sample was selected from the 1966-67 Louisiana basic resident hunting license issue to obtain a state-wide estimate for the three segments of the 1967-68 dove hunting season combined.

3. Small Game Survey

A mail survey was used to determine the quail, rabbit and squirrel kill information during the 1967-68 season. The procedure was identical to that used for the Dove Harvest Survey

Findings:

1. Deer Kill Survey

The 1967-68 Deer Kill Survey report is attached.

2. Dove Harvest Survey

   Estimates for the 1967-68 Dove Harvest Survey are to be presented by the dove study leader in his annual report on Project W-29R.

3. Small Game Survey

   The 1967-68 Small Game Survey report is attached.

Prepared by: Roger Hunter, Jr.

State of Louisiana

Project No.: FW-2R-9 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 4 Title: Southeastern Cooperative Fish and Game Statistics Project

Period Covered: July 1, 1967 through June 30, 1968

Abstract: Project FW-2R project leader served as Louisiana's representative to the Cooperative Project and presented statistical problems to the Cooperative Project.

Recommendations: It is recommended that Louisiana continues to participate in the Cooperative Statistics Project.

Objectives:

1. To coordinate with, assist and/or advise project and study leaders of fish and game research work applicable for presentation to the Institute of Statistics under the consulting phase of the project.
2. To present material to the Cooperative Project for design and/or analysis.
3. To cooperate with the Statistical Project in field testing of theoretical research results.
4. To represent Louisiana in the policy and work plan of the Cooperative Study.

Techniques Used: Through correspondence, visitations and telephone communications, problems in the area of program design and analysis were presented to the professional statistician for solution solving and recommendations. The Project was especially valuable in the area of survey design and estimator development. Aid was solicited under the following programs:

1. Deer Kill Survey
2. Dove Harvest Survey
3. Resident Small Game Survey

Prepared by: Roger Hunter, Jr.

State of Louisiana

Project No.: FW-2R-9 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 5 Title: Analyses and Reports

Period Covered: July 1, 1967 through June 30, 1968

Abstract:

Annual report information was prepared for various projects. The required Federal Aid Annual Report was prepared. Numerous interim reports of estimates and decisions were prepared. Annual Bird Banding, Deer Kill and Small Game reports are attached.

Recommendations: It is recommended that the Job be continued.

Objectives:

1. To aid in or perform necessary analyses of specified data.
2. To report on processed data within the responsibility of the project.

Techniques Used and Findings:

Program files are edited and placed into logical sequences, report outlines are prepared, draft copies worked and corrected for final reports.

Prepared by: Roger Hunter, Jr.

Record of Birds Banded and Retrapped by Species and Banding Location during FY 67-68

Species	Banding Location	Banded	Retrapped
Mallard	Rockefeller Refuge - Cameron Parish	22	
	Nebo - LaSalle Parish	8	
	Wisner - Franklin Parish	3	
	Total Mallard	33	
Mottled Duck	Rockefeller Refuge - Cameron Parish	14	
	Total Mottled Duck	14	
Green-winged Teal	Bundick - Beauregard Parish	2	
	Total Green-winged Teal	2	
Blue-winged Teal	Bundick - Beauregard Parish	2	
	Rockefeller Refuge - Cameron Parish	443	3
	Nebo - LaSalle Parish	2058	54
	Total Blue-winged Teal	2503	57
Shoveler	Rockefeller Refuge - Cameron Parish	2	
	Total Shoveler	2	
Pintail	Bundick - Beauregard Parish	1	
	Rockefeller Refuge - Cameron Parish	13	
	Nebo - LaSalle Parish	814	8
	Total Pintail	828	8
Wood Duck	Anacoco Lake - Vernon Parish	84	18
	Bundick - Beauregard Parish	185	62
	Farmerville - Union Parish	123	27
	Coulee G.M.A. - Morehouse Parish	8	
	Rockefeller Refuge - Cameron Parish	4	
	Nebo - LaSalle Parish	14	
	Extension - Franklin Parish	5	
	Washington - St. Landry Parish	270	1
	Total Wood Duck	693	108
Lesser Scaup	Rockefeller Refuge - Cameron Parish	1546	29
	Total Lesser Scaup	1546	29
Ring-necked Duck	Rockefeller Refuge - Cameron Parish	3	
	Total Ring-necked Duck	3	

Record of Birds Banded and Retrapped by Species and Banding Location during FY 67-68 (cont'd)

Species	Banding Location	Banded	Retrapped
Blue Goose	Rockefeller Refuge - Cameron Parish	8	1
	Total Blue Goose	8	1
Canada Goose	Rockefeller Refuge - Cameron Parish	606	
	Total Canada Goose	606	
Fulvous Tree Duck	Rockefeller Refuge - Cameron Parish	11	
	Total Fulvous Tree Duck	11	
King Rail	Rockefeller Refuge - Cameron Parish	2	
	Total King Rail	2	
Clapper Rail	Rockefeller Refuge - Cameron Parish	61	
	Total Clapper Rail	61	
American Coot	Rockefeller Refuge - Cameron Parish	34	
	Total American Coot	34	
Common Snipe	Rockefeller Refuge - Cameron Parish	9	
	Total Common Snipe	9	
Mourning Dove	Belle Chasse - Plaquemines Parish	37	1
	Baton Rouge - East Baton Rouge Parish	185	51
	Bellwood - Natchitoches Parish	64	23
	Rockefeller Refuge - Cameron Parish	11	4
	Fairbanks - Ouachita Parish	89	9
	Bodcau W.M.A. - Bossier Parish	85	11
	Camp Claiborne - Rapides Parish	160	153
	DeRidder - Beauregard Parish	547	156
	Newellton - Tensas Parish	177	8
	New Iberia - Iberia Parish	723	165
	Tendal - Madison Parish	1118	42
	Monroe - Ouachita Parish	473	161
	Melville - St. Landry Parish	20	
	Wisner - Franklin Parish	985	20
	Neame - Vernon Parish	3	
	Rosepine - Vernon Parish	43	10
	Marksville - Avoyelles Parish	36	3
	Total Mourning Dove	4756	817
	Total All Species	11,111	1,020

Summary of Recoveries Received During FY 67-68 of Birds Banded by Louisiana Wild Life and Fisheries Commission

Species	Louisiana Location of Banding	State of Recovery	No. of Recoveries
Mallard	Coulee G.M.A. - Morehouse Parish	New York	2
	"	Ontario	1
	Catahoula Lake - Rapides Parish	Louisiana	1
	Nebo - LaSalle Parish	Arkansas	1
	"	Louisiana	2
	Total Mallard		7
Blue-winged Teal	Rockefeller Refuge-Cameron Parish	Kansas	1
	"	Louisiana	4
	Nebo - LaSalle Parish	Colombia	1
	"	Cuba	1
	"	Florida	1
	"	Guatemala	1
	"	Jamaica	1
	"	Kansas	1
	"	Trinidad	1
	"	Louisiana	31
	"	Mississippi	1
	"	Missouri	1
	"	Saskatchewan	1
	"	Texas	1
	"	Venezuela	3
	"	Wisconsin	1
	Total Blue-winged Teal		51
Pintail	Rockefeller Refuge-Cameron Parish	Louisiana	1
	"	Saskatchewan	1
	Nebo - LaSalle Parish	Louisiana	1
	Total Pintail		3
Wood Duck	Anacoco Lake - Vernon Parish	Arkansas	2
	McGowan Brake - Morehouse Parish	Texas	1
	Washington - St. Landry Parish	Indiana	1
	Total Wood Duck		4
Lesser Scaup	Rockefeller Refuge-Cameron Parish	Alaska	1
	"	Alberta	1
	"	Florida	1
	"	Georgia	1
	"	Louisiana	4
	"	Mexico	2
	"	Michigan	1
	"	Saskatchewan	2
	"	Texas	2
	Total Lesser Scaup		15

Summary of Recoveries Received During FY 67-68 of Birds Banded by Louisiana Wild Life and Fisheries Commission (cont'd)

Species	Louisiana Location of Banding	State of Recovery	No. of Recoveries
Ring-necked Duck	Nebo - LaSalle Parish	Ontario	1
	Total Ring-necked Duck		1
Blue Goose	Rockefeller Refuge-Cameron Parish	Louisiana	1
	Total Blue Goose		1
American Coot	Rockefeller Refuge-Cameron Parish	Manitoba	1
	"	Saskatchewan	1
	Total American Coot		2
Mourning Dove	Bernice - Union Parish	Louisiana	3
	Belle Chasse - Plaquemines Parish	Louisiana	2
	Bellwood - Natchitoches Parish	Louisiana	2
	Rockefeller Refuge-Cameron Parish	Louisiana	2
	Fairbanks - Ouachita Parish	Louisiana	4
	Doyline - Webster Parish	Louisiana	1
	Bodcau W.M.A. - Bossier Parish	Louisiana	11
	"	Texas	1
	Camp Claiborne - Rapides Parish	Louisiana	8
	"	Texas	1
	DeRidder - Beauregard Parish	Louisiana	25
	"	Mexico	1
	"	Texas	5
	Newellton - Tensas Parish	Louisiana	5
	Fort Polk - Vernon Parish	Louisiana	4
	"	Texas	3
	New Iberia - Iberia Parish	Georgia	1
	"	Louisiana	26
	Tallulah - Madison Parish	Louisiana	1
	Tendal - Madison Parish	Louisiana	41
	Monroe - Ouachita Parish	Louisiana	12
	"	Mississippi	1
	"	Texas	1
	Melville - St. Landry Parish	Louisiana	3
	Wisner - Franklin Parish	Arkansas	1
	"	Louisiana	55
	"	Mississippi	1
	Rosepine - Vernon Parish	Kentucky	1
	"	Louisiana	2
	Singer - Beauregard Parish	Texas	1
	Total Mourning Dove		225
	Total All Species		309

Summary of Recoveries Received During FY 67-68 of Birds Banded in Louisiana (other than Louisiana Wild Life and Fisheries Commission)

Species	State of Recovery	No. of Recoveries
Mallard	Arkansas	1
	Louisiana	1
	Total Mallard	2
Blue-winged Teal	Kansas	2
	Louisiana	2
	Total Blue-winged Teal	4
Lesser Scaup	Alberta	1
	Louisiana	5
	Manitoba	1
	Virginia	1
	Total Lesser Scaup	8
Ring-necked Duck	Arkansas	1
	Georgia	1
	Louisiana	5
	Manitoba	2
	Minnesota	1
	South Carolina	1
	Texas	1
	Washington	1
	Total Ring-necked Duck	13
Blue Goose	Louisiana	4
	Total Blue Goose	4
Canada Goose	Illinois	9
	Iowa	1
	Louisiana	1
	Manitoba	6
	Michigan	1
	Minnesota	7
	Missouri	3
	North Dakota	1
	Ontario	3
	South Dakota	1
	Wisconsin	1
	Total Canada Goose	34

Summary of Recoveries Received During FY 67-68 of Birds Banded in Louisiana (other than Louisiana Wild Life and Fisheries Commission) cont'd.

Species	State of Recovery	No. of Recoveries
American Woodcock	Alabama	1
	Arkansas	2
	Kentucky	1
	Louisiana	5
	Michigan	1
	Tennessee	2
	Total American Woodcock	12
Mourning Dove	Louisiana	4
	Total Mourning Dove	4
Ground Dove	Louisiana	1
	Total Ground Dove	1
	Total All Species	82

Summary of Recoveries Received During FY 67-68 of Birds Banded Outside Louisiana and Recovered In Louisiana

Species	State of Banding	No. of Recoveries
Mallard	Alabama	1
	Alberta	1
	Arkansas	1
	Colorado	2
	Illinois	2
	Kansas	1
	Manitoba	2
	Minnesota	5
	Missouri	2
	Montana	3
	Nebraska	2
	North Dakota	2
	Ohio	1
	Saskatchewan	8
	South Dakota	4
	Tennessee	1
	Wisconsin	2
	Total Mallard	40
Black Duck	Michigan	1
	Minnesota	1
	Total Black Duck	2
Gadwall	Alberta	1
	Total Gadwall	1
American Widgeon	Saskatchewan	1
	Total American Widgeon	1
Green-winged Teal	New Brunswick	1
	South Dakota	1
	Total Green-winged Teal	2
Blue-winged Teal	Alabama	3
	Alberta	3
	Arkansas	3
	Georgia	1
	Illinois	1
	Indiana	1
	Iowa	13
	Kansas	1
	Manitoba	21

Summary of Recoveries Received During FY 67-68 of Birds Banded Outside Louisiana and Recovered In Louisiana (cont'd).

Species	State of Banding	No. of Recoveries
Blue-winged Teal (cont'd)	Michigan	4
	Minnesota	11
	Mississippi	3
	Missouri	6
	Montana	1
	New York	1
	North Dakota	19
	Ontario	4
	Saskatchewan	38
	South Dakota	9
	Tennessee	1
	Texas	4
	Washington	1
	Wisconsin	2
	Total Blue-winged Teal	151
Unidentified Teal	Washington	1
	Total Unidentified Teal	1
Pintail	California	1
	Colorado	1
	Manitoba	1
	Minnesota	1
	Montana	1
	Oregon	1
	Saskatchewan	4
	Total	10
Wood Duck	Arkansas	3
	Illinois	7
	Iowa	3
	Maine	1
	Michigan	1
	Mississippi	1
	Missouri	1
	Ohio	3
	Tennessee	6
	Wisconsin	2
	Total Wood Duck	28
Redhead	Arkansas	1
	Montana	1
	Utah	1
	Total Redhead	3

Summary of Recoveries Received During FY 67-68 of Birds Banded Outside Louisiana and Recovered In Louisiana (cont'd).

Species	State of Banding	No. of Recoveries
Lesser Scaup	Alaska	3
	Indiana	1
	Mackenzie	1
	Texas	1
	Total Lesser Scaup	6
Lesser Snow Goose	Franklin	1
	Missouri	3
	North Dakota	1
	South Dakota	1
	Wisconsin	2
	Keewatin	13
	Total Lesser Snow Goose	21
Blue Goose	Franklin	4
	Missouri	3
	South Dakota	3
	Wisconsin	1
	Keewatin	14
	Total Blue Goose	25
Ross' Goose	Keewatin	1
	Total Ross' Goose	1
White-fronted Goose	Mackenzie	3
	Keewatin	1
	Total White-fronted Goose	4
Canada Goose	Missouri	2
	Texas	1
	Total Canada Goose	3
American Coot	Minnesota	1
	Total American Coot	1
American Woodcock	Michigan	2
	Total American Woodcock	2

Summary of Recoveries Received During FY 67-68 of Birds Banded Outside Louisiana and Recovered In Louisiana (cont'd).

Species	State of Banding	No. of Recoveries
Mourning Dove	California	1
	Georgia	1
	Illinois	2
	Iowa	1
	Kentucky	1
	Minnesota	1
	Mississippi	12
	Missouri	4
	Texas	3
	Total Mourning Dove	26
White-winged Dove	Florida	1
	Total White-winged Dove	1
	Total All Species	329

1967-68 DEER KILL SURVEY
Summary of Estimates

Licenses and Permits Combined - All Parishes

Item	Estimate	95% Confidence		90% Confidence		80% Confidence	
		Variation	%	Variation	%	Variation	%
		±		±		±	
Hunters	124,047	1,026	.8	856	.7	667	.5
Gun Hunters	122,908	1,043	.9	871	.7	678	.6
Bow Hunters	9,702	861	8.9	719	7.4	559	5.8
Gun & Bow Hunters	8,554	816	9.5	681	8.0	530	6.2
Days Hunted	1,019,731	22,820	2.2	19,055	1.8	14,833	1.4
Deer Tag Holders Killing:							
*0 Deer	113,377	1,120	1.0	936	.8	729	.6
1 Deer	16,781	943	5.6	787	4.7	613	3.7
2 Deer	6,061	659	10.8	550	9.1	428	7.1
3 Deer	2,641	381	14.1	318	12.0	248	9.4
Bucks Killed	31,577	1,682	5.3	1,404	4.4	1,093	3.5
Does Killed	4,432	583	13.2	486	11.0	379	8.6
Total Deer Killed	35,830	1,732	4.8	1,447	4.0	1,126	3.1

*Includes approximately 14,200 persons who obtained 1967-68 Big Game licenses and permits, but who did not hunt this season. Total issue of deer tags was 138,250 of which an estimated 124,047 persons hunted deer.

1967-68 DEER KILL SURVEY
Summary of Estimates

Licenses - All Parishes

Item	Estimate	95% Confidence		90% Confidence		80% Confidence	
		Variation ±	%	Variation ±	%	Variation ±	%
Hunters	96,401	768	.8	641	.7	499	.5
Gun Hunters	95,513	798	.8	666	.7	519	.5
Bow Hunters	8,398	794	9.6	663	7.9	516	6.1
Gun & Bow Hunters	7,499	757	10.1	632	8.4	492	6.6
Days Hunted	799,020	19,472	2.4	16,259	2.0	12,657	1.6
Deer Tag Holders Killing:							
*0 Deer	82,701	1,009	1.2	843	1.0	656	.8
1 Deer	13,595	828	6.1	691	5.1	538	4.0
2 Deer	5,187	606	11.7	506	9.8	394	7.6
3 Deer	2,341	354	15.1	296	12.6	230	9.8
Bucks Killed	26,606	1,574	5.9	1,314	4.9	1,023	3.8
Does Killed	3,602	516	14.3	431	12.0	336	9.3
Total Deer Killed	30,037	1,583	5.3	1,322	4.4	1,029	3.4

*Includes approximately 6,730 persons who obtained 1967-68 Big Game licenses but who did not hunt this season. Total issue of deer tags to license holders was 103,131 of which an estimated 96,401 persons hunted deer.

1967-68 DEER KILL SURVEY
Summary of Estimates

Permits - All Parishes

Item	Estimate	95% Confidence Variation ±	%	90% Confidence Variation ±	%	80% Confidence Variation ±	%
Hunters	27,646	680	2.5	568	2.1	442	1.6
Gun Hunters	27,395	672	2.5	561	2.0	437	1.6
Bow Hunters	1,304	333	25.6	278	21.3	217	16.6
Gun & Bow Hunters	1,055	305	28.9	255	24.2	199	18.8
Days Hunted	220,711	11,900	5.4	9,936	4.5	7,735	3.5
Deer Tag Holders Killing:							
*0 Deer	30,676	487	1.6	406	1.3	316	1.0
1 Deer	3,186	451	14.2	377	11.8	293	9.2
2 Deer	874	258	29.5	215	24.6	168	19.2
3 Deer	300	139	46.5	116	38.8	91	30.2
Bucks Killed	4,971	592	11.9	494	9.9	385	7.7
Does Killed	830	271	32.7	226	27.3	176	21.2
Total Deer Killed	5,793	702	12.1	587	10.1	457	7.9

*Includes approximately 7,470 persons who obtained 1967-68 Big Game permits but who did not hunt this season. Total issue of deer tags to permit holders was 35,119 of which an estimated 27,646 persons hunted deer.

1967-68 DEER KILL SURVEY
SUMMARY OF ESTIMATES
TOTAL KILL WITHIN DISTRICT

Licenses and Permits Combined

District	Kill Estimate	95% Confidence ±Variation	95% Confidence %	90% Confidence ±Variation	90% Confidence %	80% Confidence ±Variation	80% Confidence %
District 1	3,580	762	21.3	636	17.8	495	13.8
District 2	6,482	855	13.2	714	11.0	556	8.6
District 3	3,947	598	15.2	500	12.7	389	9.9
District 4	10,599	1,132	10.7	946	8.9	736	6.9
District 5	1,879	326	17.3	272	14.5	212	11.3
District 6	2,292	385	16.8	322	14.0	251	10.9
District 7	1,448	289	19.9	240	16.6	187	13.0
District 8	1,651	225	13.7	188	11.4	147	8.9
Unknown	2,656	517	19.5	432	16.2	336	12.6
TOTAL	35,830	1,732	4.8	1,447	4.0	1,126	3.1

Parishes Within District

District 1 - Bienville, Bossier, Caddo, Claiborne, DeSoto, Red River, Webster
District 2 - E. Carroll, Jackson, Lincoln, Morehouse, Ouachita, Richland, Union, W. Carroll
District 3 - Grant, Natchitoches, Rapides, Sabine, Vernon, Winn
District 4 - Caldwell, Catahoula, Concordia, Franklin, LaSalle, Madison, Tensas
District 5 - Acadia, Allen, Beauregard, Calcasieu, Cameron, Evangeline, Jeff. Davis, Vermilion
District 6 - Avoyelles, Iberville, Lafayette, Pt. Coupee, St. Landry, St. Martin, W. Baton Rouge
District 7 - Ascension, E. Baton Rouge, E. Feliciana, Livingston, St. Helena, St. Tammany, Tangipahoa, Washington, W. Feliciana
District 8 - Assumption, Iberia, Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John, St. Mary, Terrebonne

1967-68 DEER KILL SURVEY
Summary of Parish Estimates

Licenses and Permits Combined

		95% Confidence		90% Confidence		80% Confidence	
Parish of Kill	Estimate	±Variation	%	±Variation	%	±Variation	%
01 Acadia	0						
02 Allen	1,019	177	17.4	148	14.5	115	11.3
03 Ascension	77	66	85.7	55	71.6	43	55.7
04 Assumption	227	77	34.0	64	28.4	50	22.1
05 Avoyelles	398	148	37.1	123	31.0	96	24.1
06 Beauregard	199	210	105.4	175	88.0	136	68.5
07 Bienville	752	283	37.6	236	31.4	184	24.5
08 Bossier	708	268	37.8	223	31.6	174	24.6
09 Caddo	450	468	104.1	391	86.9	304	67.7
10 Calcasieu	126	98	77.6	82	64.8	64	50.5
11 Caldwell	1,158	322	27.8	269	23.2	209	18.1
12 Cameron	17	15	88.2	13	73.7	10	57.4
13 Catahoula	374	139	37.1	116	30.9	90	24.1
14 Claiborne	453	159	35.2	133	29.4	104	22.9
15 Concordia	1,760	409	23.2	342	19.4	266	15.1
16 DeSoto	560	335	59.9	280	50.0	218	38.9
17 E. Baton Rouge	17	27	156.4	22	130.7	17	101.7
18 E. Carroll	1,307	300	22.9	250	19.2	195	14.9
19 E. Feliciana	76	64	83.7	53	69.9	41	54.4
20 Evangeline	199	88	44.2	73	36.9	57	28.7
21 Franklin	149	79	52.8	66	44.0	51	34.3
22 Grant	763	225	29.5	187	24.6	146	19.2
23 Iberia	153	51	33.3	43	27.8	33	21.7
24 Iberville	757	257	33.9	214	28.3	167	22.0

1967-68 DEER KILL SURVEY
Summary of Parish Estimates
(Cont'd)

Licenses and Permits Combined

		95% Confidence		90% Confidence		80% Confidence	
Parish of Kill	Estimate	±Variation	%	±Variation	%	±Variation	%
25 Jackson	887	303	34.1	253	28.5	197	22.2
26 Jefferson	61	41	67.2	34	56.1	27	43.7
27 Jeff. Davis	61	58	95.4	49	79.7	38	62.0
28 Lafayette	0						
29 Lafourche	194	101	52.2	84	43.6	66	33.9
30 LaSalle	484	217	44.9	181	37.5	141	29.2
31 Lincoln	398	213	53.5	178	44.6	138	34.8
32 Livingston	156	70	44.6	58	37.3	45	29.0
33 Madison	3,425	670	19.6	559	16.3	435	12.7
34 Morehouse	1,429	336	23.5	281	19.6	218	15.3
35 Natchitoches	801	243	30.3	203	25.3	158	19.7
36 Orleans	0						
37 Ouachita	614	317	51.6	264	43.1	206	33.5
38 Plaquemines	163	57	34.8	47	29.1	36	22.7
39 Pt. Coupee	542	191	35.2	159	29.4	124	22.9
40 Rapides	345	226	65.5	189	54.7	147	42.6
41 Red River	389	237	61.0	198	51.0	154	39.7
42 Richland	553	274	49.4	228	41.3	177	32.1
43 Sabine	333	192	57.8	161	48.2	125	37.6
44 St. Bernard	32	21	66.3	18	55.3	14	43.1
45 St. Charles	94	40	43.0	34	35.9	26	27.9
46 St. Helena	123	72	58.2	60	48.6	47	37.8
47 St. James	128	58	45.2	48	37.7	38	29.3
48 St. John	226	89	39.6	74	33.1	58	25.8

1967-68 DEER KILL SURVEY
Summary of Parish Estimates
(Cont'd)

Licenses and Permits Combined

Parish of Kill		Estimate	95% Confidence ±Variation	%	90% Confidence ±Variation	%	80% Confidence ±Variation	%
49	St. Landry	274	94	34.6	79	28.9	62	22.5
50	St. Martin	184	81	44.0	68	36.8	53	28.6
51	St. Mary	175	78	44.5	65	37.1	50	28.9
52	St. Tammany	273	91	33.4	76	27.9	59	21.7
53	Tangipahoa	144	150	104.1	125	86.9	97	67.7
54	Tensas	3,249	700	21.5	584	18.0	455	14.0
55	Terrebonne	198	87	43.8	72	36.6	56	28.5
56	Union	1,287	466	36.2	389	30.2	303	23.5
57	Vermilion	258	106	41.2	88	34.4	69	26.8
58	Vernon	708	285	40.2	238	33.6	185	26.1
59	Washington	265	85	32.2	71	26.8	55	20.9
60	Webster	268	124	46.3	104	38.7	80	30.1
61	W. Baton Rouge	137	95	69.5	79	59.0	61	45.2
62	W. Carroll	7	15	214.3	12	178.9	9	139.3
63	W. Feliciana	317	161	50.9	135	42.5	105	33.1
64	Winn	997	282	28.2	235	23.6	183	18.4
65	Unknown	2,656	517	19.5	432	16.2	336	12.6
TOTAL		35,830	1,732	4.8	1,447	4.0	1,126	3.1

1967-68 DEER KILL SURVEY
Parish Information

Licenses and Permits Combined

Parish	Kill Within Parish	Parish of Issue		No. of Hunters	Days Hunted	Days Per Hunter	Efforts Per Kill
		Kill	%Buck				
01 Acadia	0	38	86	262	1,459	5.6	38.4
02 Allen	1,019	525	72	2,252	17,583	7.8	33.5
03 Ascension	77	115	77	839	6,423	7.7	55.9
04 Assumption	227	153	99	237	2,562	10.8	16.7
05 Avoyelles	398	393	90	1,453	13,684	9.4	34.8
06 Beauregard	199	313	93	1,923	15,909	8.3	50.8
07 Bienville	752	574	95	1,722	17,319	10.1	30.2
08 Bossier	708	654	85	3,088	26,871	8.7	41.1
09 Caddo	450	1,794	87	8,992	66,904	7.4	37.3
10 Calcasieu	126	689	69	3,797	21,734	5.7	31.5
11 Caldwell	1,158	565	97	1,902	18,950	10.0	33.5
12 Cameron	17	19	93	115	490	4.3	25.8
13 Catahoula	374	557	93	1,811	19,103	10.5	34.3
14 Claiborne	453	400	100	1,413	12,527	8.9	31.3
15 Concordia	1,760	973	92	2,976	33,266	11.2	34.2
16 DeSoto	560	320	97	1,373	12,187	8.9	38.1
17 E. Baton Rouge	17	1,082	94	7,052	51,313	7.3	47.4
18 E. Carroll	1,307	851	84	1,455	12,836	8.8	15.1
19 E. Feliciana	76	104	98	327	1,871	5.7	18.0
20 Evangeline	199	339	93	1,349	8,166	6.1	24.1
21 Franklin	149	1,013	83	3,365	31,852	9.5	31.4
22 Grant	763	574	81	1,782	16,921	9.5	29.5
23 Iberia	153	219	97	406	2,986	7.4	13.6
24 Iberville	757	532	99	1,233	15,141	12.3	28.5
25 Jackson	887	547	94	2,106	18,770	8.9	34.3

Parish Information (cont'd)

	Parish	Kill Within Parish	Parish of Issue Kill	Parish of Issue %Buck	No. of Hunters	Days Hunted	Days Per Hunter	Efforts Per Kill
26	Jefferson	61	271	84	1,071	6,896	6.4	25.4
27	Jeff. Davis	61	142	86	567	3,075	5.4	21.7
28	Lafayette	0	219	83	877	4,832	5.5	22.1
29	Lafourche	194	201	95	451	4,367	9.7	21.7
30	LaSalle	484	713	95	2,342	19,424	8.3	27.2
31	Lincoln	398	549	86	2,084	15,894	7.6	29.0
32	Livingston	156	596	93	2,429	19,686	8.1	33.0
33	Madison	3,425	1,619	75	1,662	17,154	10.3	10.6
34	Morehouse	1,429	1,165	74	4,350	37,304	8.6	32.0
35	Natchitoches	801	560	97	2,535	22,377	8.8	40.0
36	Orleans	0	288	79	1,436	7,544	5.3	26.2
37	Ouachita	614	3,800	87	10,868	87,869	8.1	23.1
38	Plaquemines	163	60	100	138	795	5.8	13.3
39	Pt. Coupee	542	384	100	1,060	13,469	12.7	35.1
40	Rapides	345	1,229	95	6,701	49,726	7.4	40.5
41	Red River	389	262	96	870	9,105	10.5	34.8
42	Richland	553	976	80	2,751	20,022	7.3	20.5
43	Sabine	333	386	100	2,032	16,292	8.0	42.2
44	St. Bernard	32	59	94	196	1,386	7.1	23.5
45	St. Charles	94	159	98	313	2,845	9.1	17.9
46	St. Helena	123	66	100	447	2,651	5.9	40.2
47	St. James	128	135	100	235	2,855	12.1	21.1
48	St. John	226	68	96	232	1,920	8.3	28.2
49	St. Landry	274	541	87	2,505	20,428	8.2	37.8
50	St. Martin	184	52	82	254	2,149	8.5	41.3

Parish Information (cont'd)

	Parish	Kill Within Parish	Parish of Issue		No. of Hunters	Days Per Hunted	Days Per Hunter	Efforts Per Kill
			Kill	%Buck				
51	St. Mary	175	361	97	762	5,366	7.0	14.9
52	St. Tammany	273	335	93	1,260	8,223	6.5	24.5
53	Tangipahoa	144	240	97	1,461	9,507	6.5	39.6
54	Tensas	3,249	1,517	87	1,819	21,641	11.9	14.3
55	Terrebonne	198	179	94	442	3,201	7.2	17.9
56	Union	1,287	900	84	3,071	25,657	8.4	28.5
57	Vermilion	254	203	94	332	1,365	4.1	6.7
58	Vernon	708	698	90	3,715	29,123	7.8	41.7
59	Washington	265	234	98	1,392	11,763	8.5	50.3
60	Webster	268	384	95	3,084	23,166	7.5	60.3
61	W. Baton Rouge	137	129	98	475	4,914	10.3	38.1
62	W. Carroll	7	670	71	2,178	17,022	7.8	25.4
63	W. Feliciana	317	86	93	334	2,541	7.6	29.5
64	Winn	997	755	87	2,086	19,350	9.3	25.6
65	Unknown	2,656						
	TOTALS	35,830	35,830	88	124,047	1,019,731	8.2	28.5

1967-68 DEER KILL SURVEY
SAMPLING AND RESPONSES
BIG GAME LICENSES

	Parish	Licenses Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Response Rate
01	Acadia	245	55%	135	134	4	130	105	81%
02	Allen	1,674	15%	251	249	15	234	162	69%
03	Ascension	851	30%	255	251	15	236	158	67%
04	Assumption	246	55%	135	143	4	139	104	75%
05	Avoyelles	1,185	20%	237	232	5	227	169	74%
06	Beauregard	1,625	15%	244	246	31	215	153	71%
07	Bienville	1,324	20%	265	253	9	244	176	72%
08	Bossier	2,773	15%	416	415	21	394	320	81%
09	Caddo	7,953	5%	398	387	14	373	288	77%
10	Calcasieu	3,282	10%	328	326	8	318	254	80%
11	Caldwell	1,338	15%	201	190	12	178	123	69%
12	Cameron	133	100%	133	131	1	130	103	79%
13	Catahoula	1,399	20%	280	257	13	244	175	72%
14	Claiborne	1,070	20%	214	203	9	194	156	80%
15	Concordia	2,514	10%	251	245	17	228	169	74%
16	DeSoto	1,065	20%	213	210	8	202	151	75%
17	E. Baton Rouge	6,780	5%	339	336	13	323	264	82%
18	E. Carroll	1,168	20%	234	229	16	213	149	70%
19	E. Feliciana	290	50%	145	144	3	141	104	74%
20	Evangeline	1,202	20%	240	245	12	233	154	66%
21	Franklin	2,493	10%	249	254	22	232	167	72%
22	Grant	1,386	15%	208	211	8	203	133	66%
23	Iberia	430	45%	194	177	8	169	122	72%
24	Iberville	1,005	25%	251	253	4	249	189	76%
25	Jackson	1,599	15%	240	226	31	195	150	77%

Sampling and Responses (cont'd)
Big Game Licenses

	Parish	Licenses Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Response Rate
26	Jefferson	1,074	25%	269	272	6	266	209	79%
27	Jeff. Davis	535	40%	214	211	2	209	167	80%
28	Lafayette	886	30%	266	272	7	265	216	82%
29	Lafourche	473	40%	189	181	2	179	148	83%
30	LaSalle	1,988	15%	298	284	18	266	177	67%
31	Lincoln	1,661	15%	249	242	9	233	183	79%
32	Livingston	1,999	15%	300	292	10	282	181	64%
33	Madison	1,367	20%	273	268	25	243	171	70%
34	Morehouse	3,645	10%	365	310	24	286	200	70%
35	Natchitoches	2,024	15%	304	275	12	263	198	75%
36	Orleans	1,516	20%	303	297	15	282	245	87%
37	Ouachita	8,597	5%	430	424	20	404	299	74%
38	Plaquemines	174	100%	174	169	4	165	117	71%
39	Pt. Coupee	830	25%	208	195	6	189	144	76%
40	Rapides	5,318	5%	266	268	15	253	193	76%
41	Red River	682	30%	205	203	8	195	134	69%
42	Richland	2,179	15%	327	323	24	299	221	74%
43	Sabine	1,432	15%	198	201	9	192	141	73%
44	St. Bernard	192	100%	192	191	9	182	136	75%
45	St. Charles	310	50%	155	155	1	154	121	79%
46	St. Helena	357	40%	143	135	6	129	72	56%
47	St. James	243	60%	146	159	6	153	113	74%
48	St. John	240	60%	144	150	8	142	110	77%
49	St. Landry	2,112	15%	317	311	10	301	221	73%
50	St. Martin	247	60%	148	154	5	149	114	77%

Sampling and Responses (cont'd)
Big Game Licenses

	Parish	Licenses Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Response Rate
51	St. Mary	778	30%	233	233	9	224	154	69%
52	St. Tammany	1,107	25%	277	270	16	254	179	70%
53	Tangipahoa	1,231	20%	246	255	6	249	163	65%
54	Tensas	1,247	20%	249	251	12	239	160	67%
55	Terrebonne	393	45%	177	169	7	162	133	82%
56	Union	2,267	10%	227	229	16	213	157	74%
57	Vermilion	352	50%	176	176	3	173	127	73%
58	Vernon	3,103	10%	310	289	18	271	164	61%
59	Washington	1,144	25%	286	307	20	287	192	67%
60	Webster	2,474	10%	247	224	16	208	166	80%
61	W. Baton Rouge	425	45%	191	201	4	197	131	66%
62	W. Carroll	1,743	15%	261	252	22	230	149	65%
63	W. Feliciana	299	55%	164	168	3	165	137	83%
64	Winn	1,457	15%	219	214	9	205	126	61%
	TOTALS	103,131		15,402	15,127	725	14,402	10,567	73.3%

Responses to First Mailing	7,177	49.8%
Responses to Second Mailing	2,320	16.1%
Responses to Third Mailing	1,070	7.4%
Total Responses	10,567	73.3%
Non-Responses	3,835	
Effective Sample Size	14,402	

1967-68 DEER KILL SURVEY
SAMPLING AND RESPONSES
BIG GAME PERMITS

	Parish	Permits Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Response Rate
01	Acadia	42	55%	23	33	1	32	26	81%
02	Allen	841	15%	126	126	13	113	87	77%
03	Ascension	138	30%	41	32	0	32	27	84%
04	Assumption	40	55%	22	28	2	26	19	73%
05	Avoyelles	453	20%	91	87	8	79	54	68%
06	Beauregard	673	15%	101	101	19	82	58	71%
07	Bienville	632	20%	126	121	5	116	96	83%
08	Bossier	617	15%	93	88	1	87	66	76%
09	Caddo	1,597	5%	80	79	4	75	63	84%
10	Calcasieu	1,030	10%	103	94	2	92	68	74%
11	Caldwell	747	15%	112	109	13	96	70	73%
12	Cameron	14	100%	14	14	0	14	13	93%
13	Catahoula	568	20%	114	112	10	102	69	68%
14	Claiborne	574	20%	115	106	9	97	76	78%
15	Concordia	783	10%	78	74	14	60	36	60%
16	DeSoto	468	20%	94	97	11	86	69	80%
17	E. Baton Rouge	1,036	5%	52	51	2	49	46	94%
18	E. Carroll	546	20%	109	111	20	91	62	68%
19	E. Feliciana	112	50%	56	56	3	53	41	77%
20	Evangeline	459	20%	91	76	3	73	51	70%
21	Franklin	1,124	10%	112	115	19	96	73	76%
22	Grant	776	15%	116	119	6	113	84	74%
23	Iberia	82	45%	37	33	1	32	25	78%
24	Iberville	382	25%	96	90	1	89	65	73%
25	Jackson	724	15%	109	104	15	89	71	80%

Sampling and Responses (cont'd)
Big Game Permits

	Parish	Permits Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Response Rate
26	Jefferson	146	25%	37	34	2	32	29	91%
27	Jeff. Davis	121	40%	48	43	0	43	34	79%
28	Lafayette	122	30%	36	32	1	31	25	81%
29	Lafourche	36	40%	14	16	0	16	13	81%
30	LaSalle	633	15%	95	95	15	80	54	68%
31	Lincoln	644	15%	97	88	2	86	72	84%
32	Livingston	710	15%	107	109	6	103	61	59%
33	Madison	463	20%	93	65	10	55	40	73%
34	Morehouse	1,011	10%	101	101	10	91	67	74%
35	Natchitoches	864	15%	130	125	8	117	84	72%
36	Orleans	243	20%	48	43	0	43	38	88%
37	Ouachita	2,832	5%	141	142	2	140	115	82%
38	Plaquemines	13	100%	13	13	0	13	10	77%
39	Pt. Coupee	376	25%	94	100	5	95	64	67%
40	Rapides	2,071	5%	104	103	7	96	72	75%
41	Red River	299	30%	90	89	5	84	58	69%
42	Richland	986	15%	148	162	21	141	109	77%
43	Sabine	809	15%	121	106	3	103	75	73%
44	St. Bernard	17	100%	17	17	2	15	12	80%
45	St. Charles	41	50%	21	20	0	20	19	95%
46	St. Helena	159	40%	64	68	6	62	42	68%
47	St. James	19	60%	11	12	0	12	6	50%
48	St. John	23	60%	14	15	1	14	11	79%
49	St. Landry	622	15%	93	84	4	80	58	73%
50	St. Martin	59	60%	35	37	2	35	20	57%

Sampling and Responses (cont'd)
Big Game Permits

	Parish	Permits Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Response Rate
51	St. Mary	190	30%	57	58	1	57	43	75%
52	St. Tammany	342	25%	86	66	9	57	44	77%
53	Tangipahoa	394	20%	79	80	3	77	56	73%
54	Tensas	734	20%	147	147	15	132	84	64%
55	Terrebonne	79	45%	36	34	0	34	30	88%
56	Union	1,112	10%	111	106	8	98	65	66%
57	Vermilion	107	50%	54	52	2	50	35	70%
58	Vernon	915	10%	92	94	10	84	57	68%
59	Washington	494	25%	124	104	6	98	72	73%
60	Webster	1,114	10%	111	94	3	91	67	74%
61	W. Baton Rouge	133	45%	60	74	2	72	55	76%
62	W. Carroll	815	15%	122	117	14	103	71	69%
63	W. Feliciana	87	55%	47	50	0	50	40	80%
64	Winn	826	15%	124	124	6	118	84	71%
	TOTALS	35,119		5,133	4,975	373	4,602	3,406	74.0%

Responses to First Mailing	2,294	49.8%
Responses to Second Mailing	763	16.6%
Responses to Third Mailing	349	7.6%
Total Responses	3,406	74.0%
Non-Responses	1,196	
Effective Sample Size	4,602	

1967-68 SEASON
Summary of Estimates - Statewide

DOVE, QUAIL, RABBIT & SQUIRREL

License Holders Only

Species	Estimate	95% Confidence Variation	%	90% Confidence Variation	%	80% Confidence Variation	%
Dove Hunters	84,807	4,042	4.8	3,375	4.0	2,627	3.1
Days hunted	480,957	23,359	4.9	19,505	4.1	15,183	3.2
Dove kill	2,066,820	59,488	2.8	49,673	2.4	38,667	1.8
Quail Hunters	35,674	1,910	5.3	1,595	4.4	1,242	3.4
Days hunted	271,759	14,574	5.4	12,169	4.5	9,473	3.5
Quail kill	635,732	47,781	7.5	39,897	6.3	31,057	4.9
Miles traveled	6,468,048	33,482	.5	27,958	.4	21,764	.3
Rabbit Hunters	111,930	2,045	1.8	1,077	1.5	1,329	1.2
Days hunted	1,254,714	20,682	1.6	17,269	1.3	13,444	1.0
Rabbit kill	2,059,004	14,893	.7	12,435	.6	9,680	.4
Miles traveled	22,809,109	44,825	.2	37,429	.2	29,136	.1
Squirrel Hunters	157,801	2,558	1.6	2,136	1.4	1,663	1.1
Days hunted	1,593,768	51,273	3.2	42,813	2.6	33,328	2.0
Squirrel kill	2,849,541	60,138	2.1	50,216	1.7	39,090	1.3
Miles traveled	28,753,034	44,179	.2	36,896	.1	28,716	.1

Average Results Derived From Above Table

Species	Season Kill per Hunter	Efforts per Hunter	Kill per Effort	Miles per Hunter	Miles per Effort
Dove	24.4	5.7	4.3	*not computed	*not computed
Quail	17.8	7.6	2.3	181.3	23.8
Rabbit	18.4	11.2	1.6	203.8	18.2
Squirrel	18.1	10.1	1.8	182.2	18.0

*Miles traveled (round trip) was not included on the dove kill mail questionnaire of the 1967-68 season. This question was included for quail, rabbit and squirrel hunters at the request of the State Parks and Recreation Commission for a Bureau of Outdoor Recreation hunter mobility study being conducted by that agency. Their dove hunter mobility study was accomplished from the 1966-67 season results.

1967-68 DOVE AND RESIDENT SMALL GAME SURVEYS
SAMPLING AND RESPONSES

Frame Used - 1966-67 issue of Louisiana Basic Resident Hunting Licenses

Total Issue - 293,858

Sampling Rate - 1 2/3% (5 random license numbers from each 300 licenses)

Numbers Selected for Dove Survey - 144, 146, 152, 228, 289

Numbers Selected for Small Game Survey - 145, 147, 153, 229, 290

	DOVE		RESIDENT SMALL GAME (Quail, Rabbit & Squirrel)	
Total Questionnaires Mailed	4,485		4,448	
Non-Contactables	-318		-335	
Effective Sample Size	4,167		4,113	
Responses to First Mailing	1,785	(42.8%)	1,730	(42.1%)
Responses to Second Mailing	850	(20.4%)	645	(15.7%)
Responses to Third Mailing	391	(9.4%)	330	(8.0%)
Total Responses	3,026	(72.6%)	2,705	(65.8%)
Non-Responses	1,141		1,408	
Effective Sample Size	4,167		4,113	

The above sampling rate was used for the purpose of selecting between 4,000 and 5,000 hunters for each survey. From prior surveys it was determined that this was the required sample to obtain the names and addresses of approximately 1,000 known dove hunters. These names are to be used for the purposes of a regional dove telephone survey in which we are cooperating. The sample was selected from each 300 license numbers because our basic resident hunting license books contain 30 licenses each. Therefore, each 10 books (300 licenses), the terminal digits for license numbers start over with "01". By using this method, the clerical procedure was simplified. The Small Game Survey was conducted in the same manner along with the Dove Survey by using the license numbers following those selected at random for the Dove Survey. This also greatly reduced the clerical procedure required for the Small Game Survey.

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